

Public Utilities

Volume 67 No. 10



May 11, 1961

PUBLIC UTILITIES AND PEOPLE

By James W. Carpenter and Robert T. Livingston

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When Is Rapid Transit Economically Justified?

By E. L. Tennyson

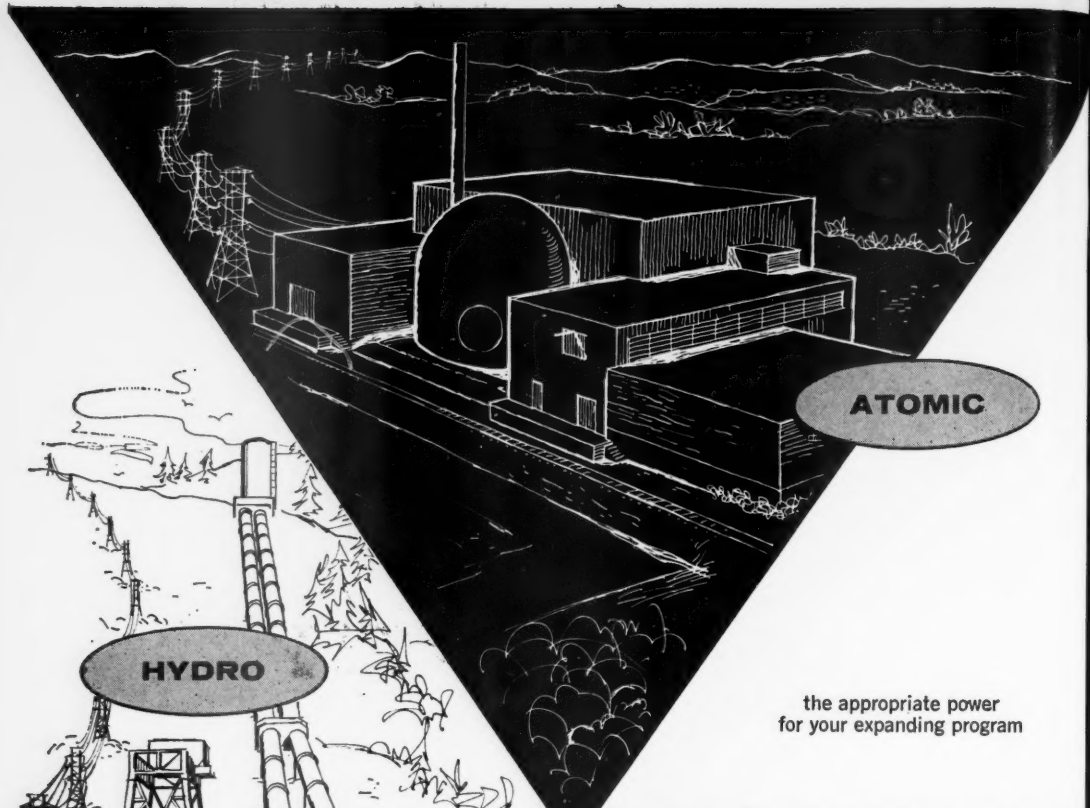
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Relationship of Capital Structure to Cost of Capital

By Lionel W. Thatcher

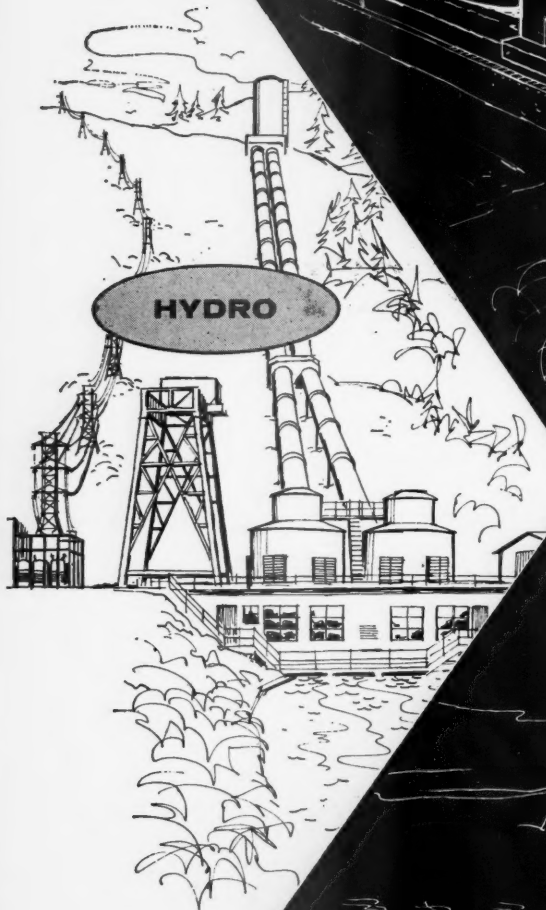
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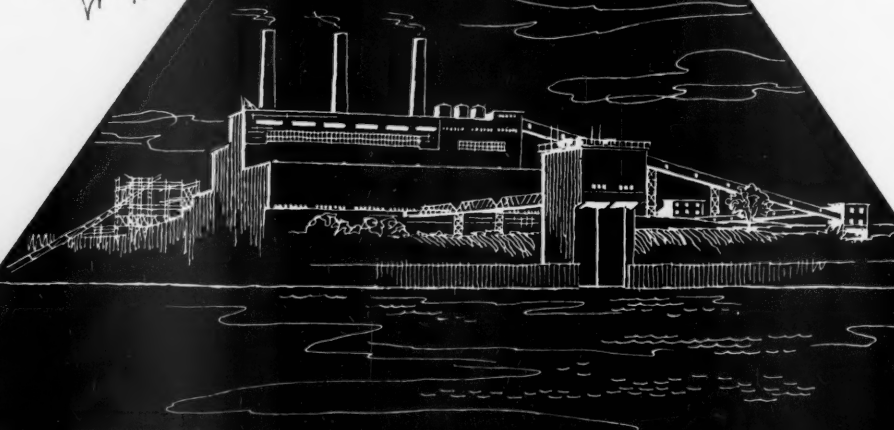
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VOLUME 67

MAY 11, 1961

NUMBER 10



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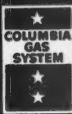
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Pages with the Editors

THE objectives of public utility rate making have come in for a good deal of attention lately in various quarters. The traditional cost base principle of fixing rates sufficient to guarantee the investor a reasonable return, over and above operating expenses, has never been the sole factor of rate making. Ever since *Smyth v. Ames* in 1898, the doctrine that utility rates should never exceed the value of service has been well settled and unquestioned.

MORE recently, however, there have been suggestions that the value of service or other standards—in addition to cost of service—may be applied to utility rate fixing on an *objective basis*. The current book on "*Principles of Public Utility Rates*," by Professor James C. Bonbright (reviewed in the last issue of this magazine, page 623) suggests that protection of the public in the rôle of consumer is an inherent part of the public utility concept, even though the consumer may not demand such protection on his own volition.

IN the railroad business, on the other hand, the monopolistic character of the enterprise has just about disappeared in the passenger transportation field, even



E. L. TENNYSON

though the continued essential nature of the service is one of the responsibilities of the Interstate Commerce Commission. Much of the financial grief of the railroads today clearly arises from competition, a large amount of which is unregulated. Recent decisions of the federal courts with respect to the regulation of gas rates by the Federal Power Commission reflect the idea that consumer protection, as such, is a prime objective of public utility regulation—quite aside from the concept of reasonableness of return to the investor.

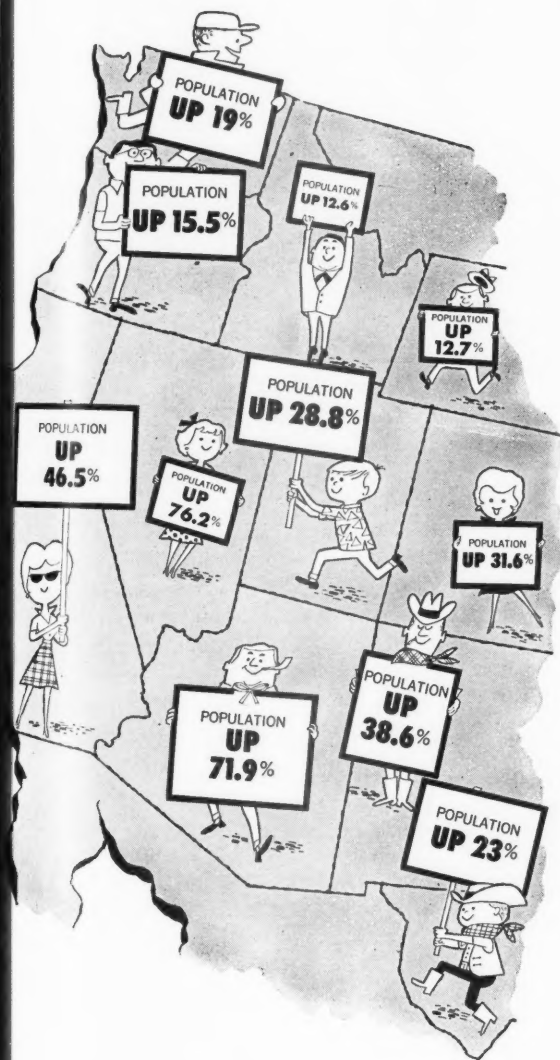
INDEED, one wonders how the gas, electric, and telephone industries could have financed their tremendous growth since World War II, or continue to finance necessary expansion in the future, without the expectation that investors in such securities will share in the advantages of economic growth and technological discoveries.

PERHAPS the key word here is "share." To say that the consumer is entitled to *all* the benefits along this line, would be to reduce regulation to a strait jacket and the public utility industry to a second-class position from the investor's point of view. To resolve all such advantages



JAMES W. CARPENTER

The West rockets ahead with more and more energy from natural gas



Year Population Growth Figures from U.S. Census, 1950 and 1960.

Growth and expansion continue to be the two big activities in the West—both for the people who live and work and play in this booming region, and for El Paso Natural Gas Company which supplies natural gas to so many of them for so many purposes.

Much of the story in detail is in the Company's Annual Report for 1960, just out.

The growth part of the story for El Paso, in a sentence:

In 1960, El Paso furnished customers in 11 Western states more than 1¼ trillion cubic feet of gas—an all-time record and over four times as much as was delivered just a decade ago.

The growth story in the 11 states is a climb in population to a total of 35,718,636 (1960 census), up 33.9 per cent in the past 10 years and still rocketing.

As for expansion—

Demand for El Paso's services and products by long-time customers keeps increasing as families and communities and businesses grow. Then add the millions of new people, more new businesses and all their needs. Add, too, the ever-increasing realization by everyone of the economy and conveniences of gas as a source of dependable energy for a multitude of uses.

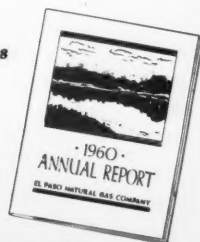
And El Paso is expanding to meet this need. To supply its customers—including such growth areas as California—it has developed the most diversified gas supply of any company in the nation. Today, El Paso's pipelines are connected with the principal producing areas of the West and Southwest, in addition to vast reserves in Canada.

The Company's Annual Report reviews a number of important projects recently completed, and reports progress on others from Canada to the Mexican border.

For copies of El Paso's 1960 Annual Report write to: El Paso Natural Gas Company, El Paso, Texas

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El Paso Natural Gas Company provides natural gas to industrial customers and distribution companies in Arizona, California, Colorado, Idaho, Nevada, New Mexico, Oregon, Utah, Washington, West Texas and Wyoming.



PAGES WITH THE EDITORS (Continued)

in favor of the investor might be to sacrifice one of the proper objectives of rate regulation. The task of the future regulator would seem to be a delicate and exacting one—to strike an intelligent and fair balance between protection of the consumer and the necessary attraction of the investor.

THE opening article in this issue deals with this important aspect of public utility management. The authors are JAMES W. CARPENTER, consultant and retired vice president of the Long Island Lighting Company, and ROBERT T. LIVINGSTON, professor of industrial and management engineering of Columbia University. They give us a review of utility functions as they affect customers and communities from the standpoint of social acceptance.

MR. CARPENTER is a native of Scranton, Pennsylvania, and was educated at Pennsylvania State University (BS EE, '14; EE, '20). He joined the Long Island Lighting Company in 1915 and also served as industrial power engineer with the Union Electric Light & Power Company in St. Louis in 1920 and the old National Public Service Corporation of New York city in 1922. He became general manager of Long Island Lighting and commercial vice president in 1939 until his retirement in 1957.

PROFESSOR ROBERT T. LIVINGSTON, MR. CARPENTER's coauthor, is a native

of Indianapolis and a graduate of Rensselaer Polytechnic Institute (ME, '17). Following service with the Navy in World War I and some naval engineering experience in New York city, he became assistant professor and subsequently professor of industrial and management engineering of Columbia University. He is the author of numerous articles on utility engineering and economics, and has been a consultant with the Worthington Pump & Manufacturing Company, E. L. Phillips & Company, and Long Island Lighting and associated companies.

* * * *

E. L. TENNYSON, transit operations engineer for the city of Philadelphia, Pennsylvania, whose article on the economic justification of rapid transit begins on pages 657, was born in New Jersey and was educated at Carnegie Institute of Technology (BS and BE). He served as traction commissioner for Youngstown, Ohio, and vice president of the Kenosha Motor Coach Lines; analyst for trustees of Pittsburgh Railways; and a consultant for the Greyhound Lines, prior to becoming transit operations engineer for the city of Philadelphia which owns a rapid transit system leased for private operation.

* * * *

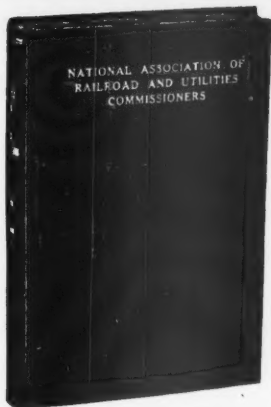
PROFESSOR LIONEL W. THATCHER, whose article on the "Relationship of Capital Structure to Cost of Capital" begins on page 662, was born in Thatcher, Idaho, in 1905 and educated at the Utah State University (BS, '26; MS, '31) and the University of Wisconsin (PhD, '38). Since 1952 he has been professor of commerce and economics at the University of Wisconsin. PROFESSOR THATCHER wishes to express his appreciation to K. T. Hsia for his assistance in the preparation of the statistical tables and formulae.

THE next number of this magazine will be out May 25th.

The Editors



LIONEL W. THATCHER



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Coming in the Next Issue...

(MAY 25, 1961, ISSUE)

LEASE OR BUY? A CONTROVERSIAL QUESTION FOR PUBLIC UTILITIES

Leasing has become a well-established means of acquiring the use of fixed assets by business enterprise. But not all of the reasons for and popularity of leasing among nonregulated competitive industries are applicable to public utilities. Thus, one of the most common reasons for a leasing program is to conserve or replenish working capital. Working capital, on the other hand, has only a minor relationship to total assets of public utilities. JOSEPH M. BRALY, financial analyst for the Arizona Public Service Company, has considered the pros and cons of leasing compared with buying fixed assets strictly from the standpoint of public utility operation. Even if a utility were able to find institutional investors willing to buy and lease back or build new (for lease) a major utility plant, the fact is the rate base of the utility would be materially lowered and earnings correspondingly affected. There are also other complications which make leasing a controversial question for utility management to determine.

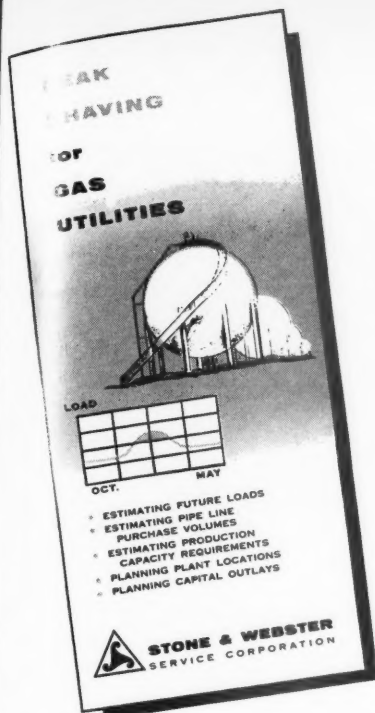
REFORM AND REORIENTATION OF NATURAL GAS REGULATION

Professor Robert B. Eckles, of the Department of History at Purdue University, has given some careful consideration to the need of orientation in natural gas regulation. It is not simply a matter of reorganizing the Federal Power Commission or reforming regulatory procedures. We seem to be heading into an area where traditional utility concepts may have to be overhauled. But we must not overlook the importance, says Professor Eckles, of encouraging gas company managements to persuade the investing public to support them in the new area wherein the wasting asset aspects of the gas business will be dramatically emphasized.

OUTLOOK FOR ELECTRIC UTILITY COMMON STOCK

Are present price-earnings ratios likely to continue? Jerome C. Hunsaker, Jr., vice president of Colonial Management Associates, Inc., has given us his best judgment as to what to expect by way of performance by utility common shares in the future. With the average electric utility stocks now selling at more than twenty-one times annual earnings, utilities are certainly higher than they were. But how do they compare with other stocks? It is necessary for the investor to consider certain inherent advantages, such as the definite demand for essential service, the lack of competition, domestic or foreign, low relative labor costs, and definitely increasing per customer demand. In short, this author concludes that the relationship between the demand and supply of utility shares indicates a continuation of the current level of utility price-earnings ratios.

AND IN ADDITION . . . Special financial news, digests, and interpretations of court and commission decisions, general news happenings, reviews, Washington gossip, and other features of interest to public utility regulators, companies, executives, financial experts, employees, investors, and others.



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*City solicitor, Philadelphia,
Pennsylvania.*

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EDITORIAL STATEMENT
The Wall Street Journal.

"To demand government subsidies when the urgent issue is freedom from government controls is surely to put the railroad car before the iron horse."

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"I want broadcasters to grow in their capabilities and in their service—not in reaction to criticism, not just to make more money, but in ever-greater pride in their creative art."

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ARTHUR J. GOLDBERG
Secretary of Labor.

"The true national interest in America is the attainment of individual freedom—not only intellectually, so that we may look any man in the face and speak our piece, but economically, so that want and fear do not become the landlords of our private stations in life."

ALFRED E. PEARLMAN
*President, New York Central
Railroad.*

"A piecemeal approach to mergers, haphazardly thrown together without regard to other than self-interest, or the aggrandizement of the stronger railroads, can do irreparable damage to our already weakened transportation system and, consequently, to the public and the economy."

EDITORIAL STATEMENT
Ottawa (Kansas) Herald.

"No matter whether you are a liberal, a conservative, or occupy the middle ground, it must be realized the advance of socialization is inevitable. It is forced upon us by the increasing economic and social complexity of the world today. The only hope of the conservative of today is that the pace of socialization is slow."

Utilities Events Calendar

CHECK THESE DATES:

- May 11-12—Pennsylvania Electric Association, Accident Prevention Committee, will hold meeting, Port Jervis, N. Y.
- May 11-12—Pennsylvania Electric Association, Prime Movers Committee, will hold meeting, Philadelphia, Pa.
- May 14-18—National Fire Protection Association will hold annual meeting, Detroit, Mich.
- May 15-16—American Bar Association, Board of Governors, will hold spring meeting, Washington, D. C.
- May 15-16—Illuminating Engineering Society, Canadian Region, will hold meeting, Montreal, Quebec, Canada.
- May 15-16—American Institute of Electrical Engineers will hold packaging industry conference, Swampscott, Mass.
- May 15-17—American Gas Association will hold midwest regional gas sales conference, Chicago, Ill.
- May 15-17—Edison Electric Institute, Purchasing and Stores Committee, will hold annual meeting, Houston, Tex.
- May 15-18—American Right of Way Association will hold national seminar, Seattle, Wash.
- May 15-27—International Festival of Television Arts and Sciences will be held, Montreux, Switzerland.
- May 17—Chamber of Commerce of the United States will hold economic institute, Washington, D. C.
- May 17-19—American Institute of Electrical Engineers, Northeastern District, will hold meeting, Hartford, Conn.
- May 17-19—Illinois Telephone Association will hold annual convention, Peoria, Ill.
- May 17-19—Pacific Coast Electrical Association will hold annual convention, San Francisco, Cal.
- May 17-19—Pennsylvania Gas Association will hold annual meeting, Pocono Manor, Pa.
- May 17-20—Edison Electric Institute, Hydraulic Power Committee, will hold meeting, Spokane, Wash.
- May 18-19—Edison Electric Institute, Transmission and Distribution Committee, will hold meeting, Cincinnati, Ohio.
- May 18-19—Pennsylvania Electric Association, System Operating Committee, will hold meeting, Scranton, Pa.
- May 21-24—Industrial Heating Equipment Association, Inc., will hold meeting, Hot Springs, Va.
- May 22-23—Kansas-Missouri Telephone Association will hold annual convention, Kansas City, Mo.
- May 22-24—National Symposium on Global Communications will be held, Chicago, Ill.
- May 24-25—Edison Electric Institute, Sales Division, Street and Highway Lighting Committee, will hold meeting, Corning, N. Y.
- May 24-26—Northwest Electric Light and Power Association, Accounting and Business Practice Section, will hold meeting, Medford, Ore.
- May 24-27—National Rivers and Harbors Congress will hold national convention, Washington, D. C.
- May 25-26—American Gas Association, Operating Section, will hold transmission conference, Denver, Colo.
- May 25-26—Electric Council of New England will hold electrical system and equipment meeting, Dennisport, Mass.
- May 25-26—Gas and Petroleum Association of Ontario will hold annual meeting, London, Ontario, Canada.
- May 25-26—Pacific Coast Gas Association will hold customers services conference, San Francisco, Cal.
- May 25-26—Pennsylvania Electric Association, Relay Committee, will hold spring meeting, Skytop, Pa.



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Live Line Maintenance with Bare Hands

"Just like the birds," linemen work on energized power line with bare hands and suffer no damage. This new technique is possible due to insulated aerial booms which are truck-mounted. Tests indicate savings in man-hours and reduction of hazards involved in such work.

Public Utilities

FORTNIGHTLY

VOLUME 67

MAY 11, 1961

NUMBER 10



Public Utilities and People

Nowhere is the challenge of a new and better way of doing the job more pressing than in the field of human relationship between the utility and the customers it serves. Is this a relationship that can be supplanted by electronic techniques? Or are all the old principles of winning friends by good deeds and friendly relations still paramount?

By JAMES W. CARPENTER and ROBERT T. LIVINGSTON*

THE Technological Age is giving mankind something beyond a progressive ride on a one-way street. The transit forward is reduced by counteraction that pulls in an opposite direction. The plus and minus may not be equal like the renowned elements in the law of mechanics, but the results upon many phases of life and business warrant earnest study.

For example, the extensive and excellent work done during this century by

*Consultant and retired vice president of the Long Island Lighting Company, and professor of industrial management engineering, Columbia University, New York, New York, respectively. For additional personal note, see "Pages with the Editors."

the agricultural colleges, experimental stations, manufacturers' laboratories, and other agencies has resulted practically in farm crops that are fantastic in quantity and quality. This great stride forward is counterbalanced partially by the "farm problem," price and planting controls, storage expense, and the high cost of living.

In the field of medicine and surgery, the advance in methods of examination has made the human internal system as open air as an outdoor cinema. New operating techniques, new apparatus, anaesthetics, medicines, antibiotics, vitamins, nursing procedures, and all the other

PUBLIC UTILITIES FORTNIGHTLY

advances in the art of healing have replaced misery and suffering with buoyant health for all—but there are side effects to be avoided in an endless struggle to compromise the costs of treatment with the acceptable charges for hospital care, medical service, and health insurance.

LOOK to the skies and the astronomers, astrophysicists and other patrolmen of the far blue yonder astound us with their findings. Their newest apparatus, long-distance observations, modernized mathematics, radio and supersonic testing have penetrated space beyond the wildest dreams of a century ago—and so through the development of greater precision and wider scope they have made the visions and descriptions of the Book of Revelations completely archaic.

The public utility industry has not escaped this era of great change; in fact, it has been the center of much of technology's action in the application of the new encyclopedia of science to cost control rather than in the cultivation of kinship with the users. In the electrical section the heavy emphasis in recent years has been on atomic power plants, high-temperature steam, and ultrahigh-voltage transmission. The motives have been lowered production costs, less labor expenditures, fuel supply conservation, and magnificent technical performance—while the nearly forgotten man, known at one time as the customer, has been wondering whether he is to be atomized by the new power plants or electrocuted by the corona of high-voltage circuits. In telephone service the elimination of operators by dial facilities is bringing about almost instantaneous oral contact from anywhere to anywhere—and the

subscriber gradually realizes that he has been handed a package in the new job of this transfer of costs whereby he is serving as his own central operator.

IN the past thirty years the gas men have found the way to compress and pipe the natural product from field to furnace over distances of hundreds of miles to provide service at costs below those of manufactured gas. In using such a supply, however, the local distributing companies have given up a part of their popularity because they now have no slogan of "made at home," no local pay-rolls for people employed in the works, no purchases of fuel and supplies particularly from local dealers, and no by-product sales to other business concerns.

Getting to the peddling end of the business, it is a fact that the outdoor meter speeds up the reading task, cuts down the skips and rereads, and assures access for testing—but nobody from the company makes an inside visit to the customer's premises. Post-card billing is similarly depersonalizing the regular calls by mail upon the patrons. It may beat Whiskers out of a cent an account a month, compress the paper requirement, and probably cut down the gap between reading date and the receipt of cash in the company till—but there is no friendly greeting, no sales message, no news of what's doing in the community when the envelope-stuffing machine is superseded.

Commercial costs are cut when the local office of the company is closed and bill payments are made in the bank, the drugstore, or the plumber shop—but the customer never has the chance to pass the time of day with that blonde, smiling cashier. As a result, the basis of all un-

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Understanding with the users, the personal contact, is lost.

Turning the advertising job over to an agency, calling on a high-pressure firm to handle publicity, public contacts, and municipal affairs will relieve company officials of direct responsibility and many arduous tasks while it adds some gray flannel to the utility representation—but shortly the public and the city fathers are wondering whether there really is anybody in the main office.

No one of experience will be Bourbon enough in these days to stand pat against progress. Still and all there can be such a concentration on technological practice and scientific procedure that shortly the rendering of public utility service becomes so impersonal, regimented, and standardized that the advocates of government ownership and operation can well ask why not go all the way. Water service, by and large, has been pretty much in that condition for years, and it is doubtful if the average user knows whether he is the client of a company or an authority.

The Human Relationship

THERE is a real challenge confronting the public utility industry in this age of science and innovation to maintain and enlarge, if possible, the human relationship between it and the people who are served. It will indeed be a great loss if the work of two generations on development of sound public and community relations should be supplanted by electronic handling of customers and local affairs. Presently there are a considerable number of so-called public relations consultants or specialists who seem to have arisen from the practice of propaganda

in World War days. They give the very definite impression that dealing with people as people is something distinctly of their creation and a completely new process in human relations. In sharp contrast with these Johnny-Come-Latelies are the folks in public utility service who have been preaching and practicing good deeds and cordiality over several decades.

The twentieth century was just moving into full orbit by the time the early telephone and electric operators had recognized that good service, adequate publicity, and co-operation in public affairs were in their best interests. Their examples brought the local gas companies out of their dusty gas sets, dark offices, and shy commercial practices into full participation in the industry performance.

BY 1920 Sam Kennedy, vice president of Southern California Edison Company, could write a book of nearly 150 pages on *"Winning the Public"* that recorded many practices widely used in utility public relations. The decade that followed saw a far-reaching expansion in the attention to and expenditures for



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favorable customer and community reaction. The debacle in utility shares after 1929 brought on by eager security dealers and the violent threats of governmental competitive operation or regulation, summed up as the birch rod treatment, could not overcome the good standing of many of the privately owned utilities of the country.

Rumors of war and war itself were other blasts that threatened the good name and the friendly associations of utilities with the public generally but their inherent belief in doing their part brought credit to all these companies. It is only as technology and so-called scientific management have become a part of the postwar pattern that real threats have arisen to the maintenance of the open way between company and customer.

IT seems to us that this present situation calls first for the most careful review of every function of the utilities that may have any effect upon their customers and communities as they carry on their active efforts for more and more public acceptance. Secondly, they need to make use of every means available when they are striving to eliminate things which detract from their good name in complaints, misunderstandings, or false allegations. The key to the present situation is not to assume that technical excellence is sufficient or that customers had better take and like the service they get, but to make every effort to gain and hold the respect, the support, and perhaps even the admiration, of all those who are served. Most of all, it needs to be kept in mind that the doorway of cordiality will be opened not by combating science but by embracing it and using it.

The first need is a clear understanding of public relations and particularly a re-statement of its definition for those in management who are newly arrived in posts of responsibility. Public relations of utility companies is one of several aspects of the human relations of such organizations in their dealing with customers, employees, shareholders, and the general public. It is the job of telling people how the company renders a vital service to its patrons and why it is an integral member of the community. While it is, of course, based upon complete, economical, and dependable service and must be a continuous factor in the performance of the company, it is much more than that.

LET us expand particularly this element of community participation. A hundred years ago the small local gas company was frequently the business of one or two men. They owned it, bought the supplies, made the gas, opened the valves that permitted delivery during evening hours, collected the customer accounts, paid the bills, hired some help when they needed extra labor, and looked with hope in the cash drawer at the end of the month. Everybody in town knew them; they were the works—some of them were friendly, some grouchy; some were boosters, some were pessimists. The essence of the local concern was wrapped up in them and only visible to the public through them.

The modern gas company and practically all other utilities have found their way into a structure called a corporation, created by law and defined by law as a person. It is a composite of many shareholders, managers, employees, and large

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properties. Despite the fact that it is legally recognized as a person, it lacks flesh and blood, heart and soul; it is intrinsically a mechanistic being without animation. It has no relations other than some possible subsidiaries or holding company parents and any of these have only a static quality. It can survive perhaps but not flourish if it exists as an introvert which does a mechanical job, deals with everybody at arm's length, and is so clannish that it will not reach out beyond its own activities and its own organization. In such an existence it will have no friends and in difficult times it will be neither missed nor mourned.

It is the challenge, the privilege of public relations work to install in that legal robot the heart of community participation, the soul of social responsibility, and the surging blood of sound service. The company becomes a live citizen of the community through the efforts of all its members and the more of them that serve in the task, the finer is the accomplishment.

The objective of public relations is not applause, a reaction probably most easily

gained by heavy applications of a like sounding word, apple sauce, to customers and communities. The bull's-eye of constructive public relations is confidence and through it the continuance of present patronage and the joining of more business.

WE must take a long, deep, and understanding look at this challenge. Let us start with an inventory of public relations work. Because much of it originally was in preparation and distribution of printed messages, there is a tendency to think that publicity, advertising, and public speaking are the be all and end all of its function. While they are important channels of communication, they are far from the whole story. Moreover, the idea of public relations as the task of a single man, a small group, or a single department is not only immature but a serious deterrent to effective results. A company may have a safety department or an accident prevention task force. Such a unit does not itself produce the high record of millions of hours free of accidents. Those results are obtained by a saturation of executive, supervisory, and employee

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levels with a keen sense of personal responsibility. It is just so in dealing with the public. Each member of the company family must share in the work if the best results are to be gained. For a manufacturer or a general business, public relations may function as a staff or group operation, but, for a public utility, it is not just one facet of the operation; rather it is the totality of effort that puts brilliancy in the service gem.

Review of Company Practices

WITH that in mind, any review of public relations work must include the examination of all the practices of a company directed toward friendliness with, and appreciation from, customers and public not only as they are exercised in days of fair weather and excellent service but also in those times when physical storm or abstract threat besets the public utility.

In the normal, sunshiny times there are plus things that are done in building and sustaining the good name of a company. It is an essential of management to make sure that the inventory of supplies, coal, gas in storage, telephone cable, meters, and whatnot is always completely adequate for normal and emergency needs. It is just as vital a function to be certain that the planned programs for public relations are working fully. Testing, reviewing, and revising where required are all part of the necessity. This is a far cry from the once-in-a-while managers who blow hot and cold on the subject of friendly relations and who think that a full-page advertisement once a year will keep the customers happy and the newspapers satisfied.

IN any inspection of customer handling, it is essential to keep in mind the number of times a year the company and customer touch hands in some way or other beyond the direct delivery and use of service. A study we made some years ago showed that over forty times a year on the average, nearly once every week, there is an individual handshake between the parties. Whether it is meter reading, billing, new meter installing job, appliance sale or demonstration, service call, letter, personal visit, or some special study, there are all these chances for a better appreciation of the company or, in the alternative, a disturbed patron. It is part of the job of management to see that the utility people involved perform in a customer-satisfying way.

One of the present-day handicaps of collective bargaining is the danger that the essence of good service gets lost in the concentration on job descriptions, hours of work, rates of pay, union membership, shop stewards' privileges, and employee complaints procedures.

Perhaps the customers need a collective contract that insures attention to some of the oftmentioned and frequently neglected practices that are involved in their relations with the utility companies:

1. THE audit of service performance by a customer survey to determine whether satisfaction predominates or concealed resentment exists. Such a study is performed better in summer months by college girls available during their vacations. Their pleasant visit with some casual questions over a reasonable spread of subjects and their quiet search for reactions is much more readily received by

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subscribers than any formal cross-examination by the district attorney type of professional interviewer or the masculine suspect from the company who is apparently checking up to find out if monthly bills should be increased.

2. THE committee on paint should function periodically over all the properties in the system. Years ago a utility executive defined paint as God's greatest gift to man. There can be no dispute that the crusted gasholder, the exchange building with faded colors, or the dirt-stained substation are public notices that the utility is poverty stricken, slovenly operated, or possessed of no pride. There is a corollary in this matter of good appearance. The progressive manager will look over the bulletin boards on his property. They are a true barometer of the currency of his organization and a real showcase of the neatness of his people. He may also go beyond this into the subject of decoration with fresh flowers in the offices, replaced regularly and provided from the gardens maintained around warehouses, garages, substations, pumping stations, and other plots of company property by men who are stationed there for emergency protection rather than for specific tasks.

3. OPEN HOUSE, not only at the new plant, operating center, general office, expanded exchange or gas meter shop, but also at the customer accounting office, the original central station, the central garage, and the distribution headquarters is a practice that reassures old friends while it interests new ones in the scope and thoroughness of the job of supply-

ing continuous, complete service. Certainly not to be overlooked is the invitation to the local schools for the pupils to visit the properties of the company or to see some of its activities demonstrated in the classrooms.

4. LIKE people returning from a long vacation who look in amazement at the rather worn furniture in the living room, the utility manager will find it worth while to look at his company's advertising, news releases, and radio or television material. It may be fresh, excellent, and attractive or there may be a note of staleness, repetitions, or age. Boiler plate may be a necessity for the small-town weekly newspaper editor but it is a sign of sloth in the publicity of a live public service company. Closely allied with this is the text of customer communications in form letters, notices, and other standard paper work. Revising, rewriting, simplifying will always make for new emphasis to both sender and receiver.

5. JUST like the periodic review of safety practices, there is equal necessity for regular examination of the attention given customers by every member of the



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utility organization who comes in touch with patrons. The lineman is completely concentrated on the voltage of the circuit on which he is working, the gas fitter is concerned with the high-pressure gas in the distribution main, and the long-distance operator is engrossed in the right key, jack, circuit, and ring through. So, too, the customer handler, high executive or junior clerk, must give direct, thorough, and courteous attention to the client across the desk, counter, or doorsill. Customers' expectation and standards of good service are constantly advancing and the live utility company must expand its efforts to meet these changes.

THE utility officer who went over to his bank to make a deposit and cash a check got some ideas when he stood in a line of ten people waiting for one teller to handle their affairs while five other tellers behind "Next Window, Please" signs were busy on their paper work. He took a look at his own shop and there were some changes made.

How often has a prospective user of service, new power or gas applicant or other caller on a utility staff member, endured angrily the interruptions of assistants, secretaries, or telephones, feeling that he would do better in treating with the company if he walked out to a public telephone booth and paid for a call that would entitle him to immediate and responsive consideration? He might well feel that the ten cents spent to reach the gas or electric company would be a real saving. If he were calling the telephone company, the call would be free.

The use of monitor telephone boards to observe the intelligence and courtesy

extended by utility company employees to those calling them on company business is fairly well-established and doubtless it has proved its value. Unfortunately, its scope has seldom, if ever, extended to a listen-in on junior and senior executives. How many times has a paying customer or a likely prospect been obliged to wait for the filtering of his phone calls through private secretaries and assistants so that Mr. Big is not distressed with a problem or an unkindly word? He is the same fellow who needs a personal handmaid to remind him to take his ulcer medicine or to buy a present for his wife's birthday. There may be adequate reason why the president of a utility company should have his phone calls screened to avoid the crackpot who wants help in financing his laborsaving machine, the chronic kicker or the egotist who can only deal with the headman, but there seems to be little, if any, justification for the modern-day, junior executive who hides behind his secretary's short skirts instead of meeting all callers openly, frankly, and courteously, even if the answer to them must be no. In the way lie practice and strength to meet the responsibilities of a higher job.

THUS we have checked over some of the stockpile of procedures, blueprints in the handbook of standard practices, guides for good performance in the continuous, ever-expanding program of pleasing people. Such actions are primarily involved in dealing with neutral or satisfied customers. In contrast, there are times when dissatisfaction, complaint, or friction affect the linkage between customers and company.

When Is Rapid Transit Economically Justified?

The author has endeavored to strike an economic breaking point in determining the justification of new rapid transit facilities from the standpoint of modern city planning. Typical values outside New York city have been developed from a comparison between various large cities.

By E. L. TENNYSON*



IN most of the world's larger cities, those concerned with city planning have come to the conclusion that greatly improved public transport is needed to assure radial rush-hour movement at reasonable speed and regularity. In many cities in the United States, consulting engineers have recommended the construction of new and extended rapid transit lines to cope with projections of ever-increasing urban congestion as traffic volumes continue to increase until the sheer volume of the traffic begins to dampen its own movement.

The term "rapid transit" is generally intended to refer to a collective method of moving groups of people in which cars capable of being operated in trains by one man are used on an exclusive right of way not shared with motor vehicles. It is generally believed to be very expensive, and, indeed, some of the plans now being considered reach costs estimated at a

billion dollars in some cities. Rapid transit, however, is the most efficient and least costly method of moving people in quantity, but very little has been developed in the way of economic justification beyond the general theory that the cost of not building it is greater than the cost of providing it.

The Test of Transit Justification

CITY planners often ask at what volume of patronage is rapid transit justified? There is no pat answer to this question as the operating costs are lower relative to alternative but perhaps less satisfactory means of public transit. It is the high initial investment that causes the question of economic justification to be asked. It can be answered only if it is known how expensive a particular project will be in relation to the number of people using it.

All forms of vehicular movement require an expensive right of way, but common practice has been to provide city

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streets without regard to economic factors as a matter of convenience. Public transport using these streets is assumed to have no fixed cost, with a fuel tax related to operating expenses being the only significant charge. This plus license fees seldom exceeds $3\frac{1}{2}$ cents per vehicle mile, or 6 per cent of operating costs. This charge does not cover acquisition of the property on which the street is built, property taxes on its value, interest on the investment, snow removal, and policing expense, all of which are borne by the traditional method of calculating rapid transit costs.

As a practical matter, street transit vehicles operating in the general traffic stream can share the public road for $3\frac{1}{2}$ cents per mile, provided the volume of traffic does not become so large as to require an exclusive lane of traffic. There is no reason to measure costs of single-unit street-type vehicles on an exclusive right of way for their higher operating costs per passenger render them incapable of amortizing the cost of their right of way at less cost than multiple-unit rapid transit. This is so because the cost of construction of a heavy-duty private road is no less than the cost of constructing an electric railway.

The actual fully allocated cost of rapid transit, while often lower than for surface transit, will vary widely, depending upon the specific type of right of way which is involved.

The Self-supporting Basis for Rapid Transit Service

WHILE rapid transit is a necessity for many cities, including some that do not have it, far too little attention has

been given to its economic justification on a self-supporting basis. Too many plans assume the need for subsidy, and in so doing place rapid transit planning at the personal whims of the designer instead of under the automatically and accurately guiding hand of the free economy.

This is not to suggest that private enterprise should undertake rapid transit work for that is impossible under existing and probable tax systems, but it should be enough for the public to lend their full faith and credit without giving tax donations as well. There is nothing wrong with tax support for a desirable and necessary public facility, but a specific yardstick is absolutely necessary to measure the effectiveness of the design and planning work. Rapid transit should be built where it will do the most good, obviously, and this can only be determined after all factors have been converted into dollars, for comparison. It is proposed to offer a simplified method for making relative economic comparisons between the two general types of transit service to further study of this problem.

THIS economic relationship between surface transit and rapid transit can be expressed in equation form, simplified on the sound assumption that rapid transit will always be of relatively high volume and thus unit right-of-way maintenance will not vary greatly because of the large number of vehicles. With only a few short trains per day, it would be necessary to treat right-of-way maintenance as a fixed cost, but rapid transit is never built for such low volume. This is more of a problem with railroad operation.

WHEN IS RAPID TRANSIT ECONOMICALLY JUSTIFIED?

The Known Costs of Transit Operation

It is quite realistic to set forth the usual known costs of transit operation, and the typical usual costs of rapid transit construction. With this information, planners can work through the formula to determine the break-even point for rapid transit for their specific application.

Admittedly, economics are not the sole criterion. It is usual for rapid transit to increase the number of transit riders per capita greatly (see Table I, this page) so that congestion relief and/or economic stimulation may have as much to do with rapid transit justification as operating economy.

Many determinable facts are readily available for substitution in a formula, as listed herewith:

A=Annual total cost of vehicle op-

eration per unit, excluding interest and depreciation.

C=Purchase cost per unit of acquiring rolling stock.

G=Investment per unit required for shops or garages.

M=Round-trip miles of route under study.

P=Investment per mile to obtain and complete right of way for operation.

R=Capital recovery factor.

S=Schedule speed in miles per hour.

X=One-way passenger movement at maximum load point at peak hour.

64=Scheduled capacity of 40 x 8-foot bus.

137=Scheduled capacity of 67 x 10½-foot rapid transit car.



TABLE I

TRANSIT RIDES PER CAPITA PER ANNUM
(RIDING HABIT)

1960 Population	City	Street Transit Rides	Per Capita	Paid Rapid† Transit Rides	Per Capita	Total Per Capita
2,450,068	Los Angeles	176,148,000	72	0	0	72
1,654,125	Detroit	147,808,681	89	0	0	89
922,244	Baltimore	101,004,851	108½	0	0	108½
	Median without rapid transit		108½	0	0	108½
747,127	St. Louis	88,000,000	117½	0	0	117½
745,603	Washington	135,515,862	182	0	0	182
3,511,648	Chicago	426,226,629	122	107,067,414	30½	152½
869,728	Cleveland	125,000,000	143½	15,000,000	17	160½
2,002,512	Philadelphia	252,000,000	126	80,000,000	40	166
	Median with rapid transit		124		46½	170½
900,000	Boston, Cambrg, Somrv	70,000,000	78	142,434,900	158	236
7,710,346	New York	837,484,261	108½	1,324,054,282	172	280½
658,420	Toronto	226,000,000	344	35,000,000	53	397

Commuter rail lines, suburban bus lines, and suburban population excluded.

Toronto is served primarily by streetcars.

Data from Moody's Manuals.

† Rapid transit passengers outside New York are approximately one-half the actual number as about 50 per cent pay on buses, then ride free on rapid transit. Only New York and Boston have thorough rapid transit coverage.

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SUBSCRIPTS can be used to identify the above with specific applications:

b = bus; g = garage; p = fixed plant; r = rapid transit.

Street transit costs depend upon the annual cost of operation per unit (A_b) plus the annual increment of investment in rolling stock (C_b) determined by multiplying the total by the capital recovery factor (R) to reflect depreciation and interest costs, plus similar investment costs for garages (G_bR_g). The sum of these ($A_b + C_bR_b + G_bR_g$) constitute the total annual cost per unit of rolling stock.

A Cost Formula for Surface Travel

THE number of units can be determined by dividing the number of riders one way per peak hour (X) by the scheduled rush-hour capacity of each vehicle (64),¹ which will give the number of units required at the maximum

¹ This figure must be approximately 25 per cent below the jammed maximum to allow for irregularities and personal convenience.

of vehicles will be different from this as the scheduled round-trip time varies from the exact hour. This can be expressed by dividing the number of round-trip miles (M) by the scheduled speed in miles per hour (S_b), and multiplying the result ($\frac{M}{S_b}$) by the predetermined $\pi/64$.

Thus, the annual cost of surface transit operation for a given route will be

$$(A_b + C_bR_b + G_bR_g) \left(\frac{MX}{64S_b} \right).$$

Rapid transit operating costs can be determined in the same way, except that the private right of way permits the passenger loading to be increased from 64 per unit to 137 with larger vehicles if approximately $4\frac{1}{2}$ square feet of interior space are allocated to each passenger. Additionally, there must be added the cost of the complete right of way (P), times the capital recovery factor (R_p),

times the length of route ($\frac{M}{2}$). The to-

² *Id.*



TABLE II
COST OF PROVIDING TRANSIT SERVICE

	Rapid Transit		Bus	
	Philadelphia	Cleveland	Philadelphia	Cleveland
Maintenance of:				
Way and Structures	\$ 621,214	\$ 217,798	\$ 116,734	—
Rolling Stock	631,139	224,127	4,467,984	\$ 2,418,026
Power or Fuel	803,023	224,690	2,257,785	1,543,317*
Conducting Transportation	2,566,877	1,096,775	13,565,437	7,713,046
General and Misc.	614,700	374,968	5,193,608	3,064,911
Total	\$5,236,953	\$2,138,358	\$25,601,548	\$14,739,300
Number of Vehicles	226	88	1,400	864
Annual Cost Per Vehicle	\$23,175	\$24,300	\$18,287	\$17,059*

*Does not include fuel and Social Security taxes of \$678,026.78 or \$785 per bus.
Data from Philadelphia Department of Public Property and Cleveland Transit System annual report.
Social Security and fuel taxes are included in the above expenses in the related account groups, except as noted by (*).

WHEN IS RAPID TRANSIT ECONOMICALLY JUSTIFIED?

tal cost per year then becomes as follows:

$$(A_r + C_r R_r + G_r R_g) \left(\frac{MX}{137S_r} \right) + \frac{PR_p M}{2}$$

By equating this rapid transit cost with the surface transit cost, (X) becomes the number of passengers one way per peak hour that determines the break-even point of rapid transit economy compared with surface transit service.

The formula becomes practically meaningless at volumes above 6,000 passengers per peak hour, as surface volumes above that figure require an exclusive lane of street for reasonable loading and movement. Once the full cost of a lane of street is charged to surface operation, rapid transit will usually be more economical, as well as more expeditious and attractive.

Comparison of City Expenses

To take several general examples, where rapid transit might be under study, the following values are typical outside New York city, and have been developed from the average between Cleveland's fast modern system in a medium-size city and Philadelphia's large system (without modern cars when the data were taken). Both cities have modern surface vehicles. (See Table II, page 660.)

A _b —\$20,000 per unit	A _r —\$25,000 per unit *
C _b —\$25,000 per unit	C _r —\$110,000 per unit
G _b —\$5,000 per unit	G _r —\$8,000 per unit
S _b —Eight miles per hour #	S _r —18 miles per hour
R _b —0.087 @ 3½%	R _r —0.050 @ 3½%
M—16 miles round trip	R _p —0.043 @ 3½%
P—\$1,250,000 to convert an abandoned railroad	
"—\$2.5 million to locate on an expressway median	
"—\$5 million for elevated construction	
"—\$9 million for depressed open right of way	
"—\$12.5 million for conventional cut and cover subway	

#—Ten miles per hour, except 5½ in the city center.

*—Based upon 30,000 miles per unit per year at 15 mph, or 50,000 miles at 25 mph.

Interest at 3½ per cent reflects government tax-free rates. It is obvious that private capital is not going to build expressways or subways.

SUBSTITUTING the above standard or average values in the equation—

$$(A_b + C_b R_b + G_b R_g) \left(\frac{MX}{64S_b} \right) =$$

$$(A_r + C_r R_r + G_r R_g) \left(\frac{MX}{137S_r} \right) + \frac{PR_p M}{2}$$

it is found that X = 860 passengers one way per peak hour on an abandoned railroad right of way, 1,720 on an expressway, 3,450 on an elevated, 6,200 depressed, and 8,600 in a subway. If the speed of rapid transit will attract more traffic than this, rapid transit will provide the most economical form of transit service.

"GOVERNMENT cannot change human nature, but an alert government can act to limit the creation of power centers and thus inhibit the willful use of that power."

—BARRY GOLDWATER,
U. S. Senator from Arizona.



Relationship of Capital Structure to Cost of Capital

By LIONEL W. THATCHER*

This article suggests that capital structure does influence the overall cost of capital. It deals also with the optimum structure, which is not constant but varies with the conditions of the market and the attitude of investors over the business cycle.

THE volume of public utility financing during the postwar period has been large. The American Telephone and Telegraph Company and its subsidiaries have increased total capital by more than \$14 billion from January 1, 1946, to December 31, 1959. Electric utilities in the United States have raised more than \$22 billion, and the natural gas utility and pipeline industry \$13 billion during this period.

The manner in which such a vast aggregate of capital should be raised has been of significance not only to the utilities, the financial institutions furnishing capital, but likewise to regulatory commissions. A particularly controversial problem is the decision with respect to the relative amount of capital that should

be obtained by the sale of senior securities comprised of long-term bonds and preferred stock as compared with equity capital derived from common stock.

THE use of fixed income senior capital comprised of bonds and preferred stock as a method of financing public utilities is referred to as "trading on the equity"—a concept generally familiar to students of public utility economics and well-explained in elementary textbooks in finance. The general principle, briefly stated, is that the returns available to common stockholders will be increased if the rate paid on senior capital is less than the rate of return earned on total capital employed in the operation of a utility. This condition normally prevails.

However, if a utility engages in debt financing to such an extent that the debt

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RELATIONSHIP OF CAPITAL STRUCTURE TO COST OF CAPITAL

becomes disproportionate to total capital structure, increases in the cost of such capital will occur. The disproportionate use of debt involves latent risks that do not exist when equity financing is used. This would reflect itself not only in the leveraged effect on common earnings but also in the capitalization rate (earnings-price ratio) of common stock in an adverse fashion. Some writers claim that the increased cost of equity funds to a company is directly traceable to the debt financing and, hence, must be properly considered as part of the real cost of debt financing.

It is also suggested that because of the interplay of forces behind debt and equity financing (added risk), the true measure of all financing costs in deriving a rate of return is really the cost of equity capital.¹ The reason involved is the fact that managements recognize certain hidden costs in borrowing which give rise to a situation where reduced earnings may force a company into receivership, or they show up not in higher rates of interest but in the form of increasingly stringent restrictions imposed on the company's management and finances by creditors (such as dividend restrictions); and ultimately in a complete inability to obtain additional long-term debt from institutional investors who normally set the standards in the market for funds.

On the other hand, among other financial analysts, it is claimed that conservative increases in long-term debt do not increase the risk borne by common stockholders; and that a package of securities containing a reasonable propor-

tion of bonds will command a higher market price than a package of common stock alone. Accordingly, the combined cost of debt and common stock capital will be less with a reasonable debt ratio² than would be the case if all capital were obtained through common stock.

SOME economic theorists assert that under conditions of perfect competition or on a "pure theory of risk and return," one function of the market is to equalize risks on all investments.³ If the yield differentials between two securities should be greater than the apparent risk differentials, the informed investors or arbitrageurs would watch these ratios and switch from one security to another or seek alternative investment opportunities so as to restore the yield differential to its proper value.

In a recent article on security valuation and the cost of capital Messrs. Modigliani and Miller have stated "the average cost of capital to any firm is completely independent of the capital structure and is equal to the capitalization rate of a pure equity stream of its class."⁴ The authors concede that the cost of borrowed capital will tend to increase as the proportion of debt increases, but the overall cost of capital will not be affected by this leverage (apart from the tax effect), since this increase will tend to be offset by "a corresponding reduction in the yield

² Cost of Debt and Equity Funds for Business: Trends and Problems of Measurement, National Bureau of Economic Research, Conference on Research in Business Finance, p. 97.

³ "The Structures of the Capital Market and the Price of Money," by Walter A. Morton, *American Economic Review*, May, 1954.

⁴ "The Cost of Capital, Corporation Finance, and the Theory of Investment," by F. Modigliani and M. H. Miller, *American Economic Review*, June 1958.

¹ "Managerial Economics-Decision Making and Economics," by Spencer and Siegelman, p. 407.

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TABLE I
AVERAGE RATE OF RETURN
ON TOTAL CAPITAL AND ON COMMON EQUITY
OF 116 ELECTRIC UTILITIES

<i>Average Rate of Return</i>	<i>Group I 41 Com- panies</i>	<i>Group II 44 Com- panies</i>	<i>Group III 31 Com- panies</i>	<i>All 116 Com- panies</i>
On Total Capitali- zation				
1953	5.95	6.26	6.46	6.03
1954	6.01	6.28	6.56	6.08
1955	6.07	6.39	6.51	6.15
1956	6.16	6.41	6.68	6.23
1957	6.09	6.42	6.56	6.17
On Common Stock Equity				
1953	10.03	11.36	11.93	10.33
1954	10.07	11.28	12.07	10.35
1955	10.33	11.63	12.12	10.63
1956	10.46	11.54	12.64	10.73
1957	10.23	11.26	12.07	10.49

Note: Group I represents the companies with annual operating revenue of over \$50 million; Group II, between \$15 and \$50 million; and Group III, of less than \$15 million.

of common stock." The reason for this conclusion is the assumption of a perfect market and that arbitrage is workable between securities in "an equivalent class."⁵

⁵ *Id.*

BECAUSE of imperfection of the so-called "perfect market," the lack of funds for arbitragers, and the deterrents to investors in buying securities either by law, by psychological reasons, or by income taxes, a theoretical compromise be-

TABLE II
AVERAGE RATE OF RETURN
ON TOTAL CAPITAL AND ON COMMON EQUITY
OF 30 SELECTED GAS UTILITIES
1953-57

<i>Average Rate of Return</i>	<i>Group I 10 Com- panies</i>	<i>Group II 10 Com- panies</i>	<i>Group III 10 Com- panies</i>	<i>All 30 Com- panies</i>
On Total Capitali- zation				
1953	6.16	6.13	5.72	5.93
1954	6.56	6.13	6.12	6.16
1955	7.08	6.69	6.44	6.92
1956	7.52	6.98	6.92	7.00
1957	7.16	7.15	6.64	6.92
On Common Stock Equity				
1953	9.87	13.60	8.28	9.99
1954	10.26	12.55	9.23	10.36
1955	11.37	15.11	10.04	11.75
1956	12.19	15.82	10.90	12.57
1957	11.89	15.64	10.12	12.13

Note: Group I represents the distribution companies; Group II, the transmission companies; and Group III, the integrated companies.

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tween the two points of view is often suggested.

It seems reasonable that the risks inherent in the operation of a utility may remain the same regardless of its capitalization. But when these risks are divided among the various classes of securities in accordance with the terms thereof, the aggregate value of such securities may be more than if the utility were financed solely with equity capital.

Some will maintain that such propositions are merely theoretical, long-run propositions but of little or no practical value. Unfortunately, there has been little objective testing of such conflicting hypotheses; yet the matter can be clarified only by empirical research. This involves the gathering of reliable and pertinent data in the face of varying and erratic security-price quotations, varying dividend payments, including the effect of stock dividends, stock splits and special payments, and earnings with "deferred taxes reserved" or with "flow-through" treatment given tax deferrals, as well as other vagaries of accounting practices, to mention a few of the obstacles an empiricist will encounter when he investigates the costs of capital.

Purpose of the Study

THE purpose of this article, which is part of a broad "cost-of-capital study," is to explore the relationship between capitalization leverage and the valuation of common stock earnings for electric utilities and natural gas companies. Expressed in another way, the investigation was designed to ascertain whether, other things being equal, the per cent return on common stocks varies

with the proportion of common equity to total capital structure.

A secondary purpose of this article is to try and answer the question which constantly arises before regulatory commissions in connection with rate of return studies; namely, that a utility should earn a certain per cent on its common stock equity because such a per cent represents the average earned by other utilities. Apparently such claims are based on the assumption that the per cent earned on common stock should be the same regardless of the ratio of equity to total capital structure.

NOTWITHSTANDING the numerous difficulties encountered in the study of the cost of capital for corporations, public utility companies are well adaptable for such an empirical analysis because of the relative stability of their earnings and the availability of a sizable homogeneous sample of companies. Not only do the utilities show samples which are reasonably homogeneous, but they show considerable variation in growth rate, earnings, dividends, capital structure, and the like to justify significant comparisons. This is particularly true for the 116 electric utility operating companies included in this study.

For the 30 natural gas utilities studied and particularly for the two subsamples of distribution and transmission, the above-named obstacles might have narrowed the ability of the analysis to measure fully the effect of capital structure on the return for common equity.

Scope of the Study

As stated above, this first study covers two important industries in the pub-

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lic utility field; namely, the electric and gas.

The 116 electric companies analyzed in this report are representative electric utilities whose common stocks are quoted regularly in most market reports. They comprise the list and classification used in 1958 by C. A. Turner in "Financial Statistics—Public Utilities" and provide a comprehensive cross section of the electric industry. Because the size of electric

utilities might affect their return performance, they are classified into the following three groups according to their annual operating revenues:

Group I, 41 companies, with annual operating revenues over \$50 million, and

Group II, 44 companies, with annual operating revenues between \$15 and \$50 million, and

Group III, 31 companies, with an-



TABLE III
TEN NATURAL GAS DISTRIBUTION UTILITIES
AVERAGE CAPITALIZATION AND AVERAGE COMMON EQUITY
PER CENT COMMON EQUITY AND PER CENT COMMON EARNINGS BEFORE
AND AFTER ADJUSTMENT

	1957			
	Average ¹ Capitalization (000's)	Average Com- mon Equity ¹ (000's)	% of Avg. Com. Equity of Total Avg. Capitaliz.	Gross Income ² Amount (000's)
(a)	(b)	(c)	(d)	(e)
1. Atlantic Gas Light Co.	\$ 58,560	\$ 19,906	33.99	\$ 3,540
2. Brooklyn Union Gas Co. ...	133,354	58,750	44.06	9,119
3. Gas Service Co.	60,565	21,271	35.12	4,862
4. Indiana Gas & Water Co. ..	31,918	14,063	44.06	2,733
5. Laclede Gas Co.	90,409	28,703	31.75	5,827
6. Minneapolis Gas Co.	46,844	18,776	40.08	4,472
7. Mountain Fuel Supply Co. .	73,528	39,848	54.19	5,108
8. Northern Illinois Gas Co. .	164,586	79,293	48.18	12,321
9. South Jersey Gas Co.	25,345	11,986	47.29	1,758
10. Washington Gas Light Co. .	96,409	42,952	44.55	6,184
	\$781,518	\$335,548	42.94	\$55,924
	Common Stock Earnings		Variation ³	
	Amount (000's)	% of Avg. Com. Equity	From Avg. Return Of 7.16%	Common Earnings Adjusted to Average Return Basis Inc. or Dec. Adj. %
(g)	(h)	(i)	(j)	(k)
1. Atlantic Gas Light Co.	\$ 2,031	10.20	+1.11	3.26
2. Brooklyn Union Gas Co. ...	6,318	10.75	+0.32	0.73
3. Gas Service Co.	3,462	16.27	-0.88	(2.54)
4. Indiana Gas & Water Co. ..	2,133	15.17	-1.40	(3.17)
5. Laclede Gas Co.	3,518	12.26	+0.72	2.26
6. Minneapolis Gas Co.	3,404	18.13	-2.39	(5.96)
7. Mountain Fuel Supply Co. .	3,754	9.42	+0.21	0.39
8. Northern Illinois Gas Co. .	9,704	12.24	-0.33	(0.68)
9. South Jersey Gas Co.	1,204	10.05	+0.22	0.47
10. Washington Gas Light Co. .	3,760	8.75	+0.75	1.68
	\$39,888	11.89		

¹ Average of capitalization at beginning and end of the year. Includes notes payable and bank loans in current liabilities.

² Includes interest during construction.

³ I=7.16 per cent plus or minus column (f).

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nual operating revenues of less than \$15 million.

Separate studies were made for each of these groups and for the combined group of 116 companies for each year 1953-57, inclusive.

WITH respect to the 30 gas utilities studied, the returns on common stock and equity ratios differ widely as between distribution and transmission companies. Therefore, the same natural gas companies and classification used by Moody's Public Utility Manual were adopted in this report, which consists of

ten transmission companies, ten distribution companies, and ten integrated companies.

Studies similar to those outlined for electric utilities and for the same years were made.

Financial data pertaining to both the electric and gas utilities were obtained from Moody's Public Utility Manual.

Procedure and Adjustment of Financial Data

BEFORE any computations, ratios, or formula relating to studies on the cost of capital can be made, statistical and financial data must be compiled and

TABLE IV
COEFFICIENTS OF CORRELATION AND DETERMINATION
FOR THE ELECTRIC AND GAS INDUSTRIES, 1953-57
BASED ON HYPERBOLIC EQUATIONS

<i>Electric Utilities</i>	<i>Group I Coefficients</i>		<i>Group II Coefficients</i>	
	<i>r</i>	<i>r</i> ²	<i>r</i>	<i>r</i> ²
1953 .....	.8748	.7653	.8359	.6987
1954 .....	.7462	.5568	.8808	.7758
1955 .....	.8556	.7320	.8762	.7677
1956 .....	.7710	.5944	.8311	.6907
1957 .....	.8238	.6786	.6993	.4890
<i>Electric Utilities</i>	<i>Group III Coefficients</i>		<i>All Companies Coefficients</i>	
	<i>r</i>	<i>r</i> ²	<i>r</i>	<i>r</i> ²
1953 .....	.8546	.7303	.8053	.6485
1954 .....	.8408	.7069	.7984	.6374
1955 .....	.8716	.7597	.8635	.7457
1956 .....	.9065	.8217	.8292	.6875
1957 .....	.8428	.7103	.7499	.5623
<i>Gas Utilities</i>	<i>Group I Coefficients</i>		<i>Group II Coefficients</i>	
	<i>r</i>	<i>r</i> ²	<i>r</i>	<i>r</i> ²
1953 .....	.9201	.8466	.8223	.6762
1954 .....	.9023	.8141	.5956	.3547
1955 .....	.8797	.7739	.9153	.8378
1956 .....	.7525	.5662	.9267	.8588
1957 .....	.9402	.8840	.8568	.7341
<i>Gas Utilities</i>	<i>Group III Coefficients</i>		<i>All Companies Coefficients</i>	
	<i>r</i>	<i>r</i> ²	<i>r</i>	<i>r</i> ²
1953 .....	.6475	.4192	.8567	.7339
1954 .....	.8804	.7751	.8265	.6801
1955 .....	.9038	.8168	.9376	.8791
1956 .....	.9510	.9044	.9290	.8631
1957 .....	.8908	.7935	.8836	.7807

Note: *r*—coefficient of correlation based on hyperbolic equation.

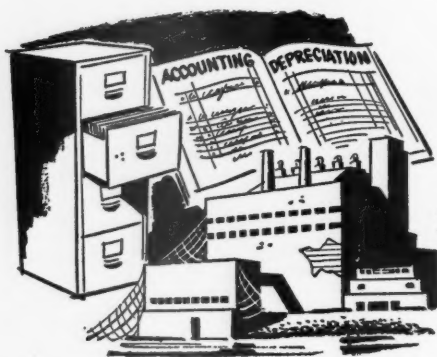
Note: *r*²—coefficient of determination based on hyperbolic equation.

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tabulated in proper form. For these particular studies, the per cent of common stock equity to total capitalization, the per cent earned on the common equity, and the per cent earned on total capital were obtained for each company and for each year, 1953 to 1957, inclusive. The average rate of return on total and equity capital are shown in Tables I and II, page 664.

In order to maintain comparability of financial data, relating to the utilization of capital and the return on capital for utilities of varying size and operations, it was necessary to adjust certain balance sheet and income accounts. Notes payable and bank loans, usually not classified as long-term debt, were included in total capital as part of the debt of the utility. Rather than adjust by some normalizing process, deferrals on federal income taxes due to accelerated depreciation were tabulated as reported in Moody's Manual. Both common stock equity and total capital were averaged on the basis of the amounts reported at the beginning and the end of the year.

THE following computation for the Arizona Public Service Company



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will illustrate the procedure followed for each company in determining the per cent of common stock equity and the per cent earned both on common equity and on total capital:

	<i>Amounts in \$000's</i>
Total Capitalization:	
End of 1956	\$132,691.00
End of 1957	149,818.00
Average for 1957	141,255.00
Common Stock Equity:	
End of 1956	\$ 40,866.00
End of 1957	44,523.00
Average for 1957	42,695.00
Per cent average common equity of average total capital	28.61
Gross Income in 1957:	
Amount	\$ 9,838.00
Per cent earned on average total capital	6.96
Common Stock Earnings:	
Amount	\$ 6,118.00
Per cent earned on average common equity ...	14.33

THE per cent return on total capital was employed in this report in order that proper allowance for differences in total return could be made in comparing the per cent of common stock earnings. To illustrate, in 1957 Central Louisiana Electric Company, Inc., earned 7.12 per cent on total capital and 14.38 per cent on common stock equity, aggregating 30.6 per cent of total capital. The Baltimore Gas & Electric Company, in the same year, with a rate of return of 6.39 per cent earned 10.34 per cent on common stock equity of 43.6 per cent. It seems apparent that common stock earnings are affected materially by the differences in rate of return on total capital.⁶

As a method to eliminate much of the effect of this variation, the per cent

⁶ It is recognized that many other variables or factors may contribute to the differences in total earnings in utility companies. However, we are not here attempting to measure the causes of such differences but only the relationships between total returns and equity returns under varying percentages of equity capital.

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of common stock earnings of each company was all adjusted to the common earnings percentage which would result for each company if its overall rate of return were equal to the average rate of return of the group or the average total return for all the utilities, depending on the classification used in the study.

For example, Group I electric utilities in 1957 earned an average return on total capital of 6.09 per cent and the average total return of the entire industry comprising 116 companies earned a rate of 6.17 per cent for the same year. Hence, if the Baltimore Gas & Electric Company, which earned 6.39 per cent, had earned the average rate of the group of 6.09 per cent, its adjusted rate of return on common stock equity of 43.6 per cent would be 9.65 per cent rather than 10.34 per cent, a decrease of .69 per cent or roughly two-thirds of one per cent, computed as follows:

$$\frac{+ 6.09\% - 6.39\%}{43.6\%} + 10.34\% = 9.65\%$$

SIMILARLY, if the company had earned a return of the average rate of the industry, the adjusted return on common stock equity would be decreased from 10.34 per cent to 9.84 per cent or half of one per cent.

$$\frac{+ 6.17\% - 6.39\%}{43.6\%} + 10.34\% = 9.84\%$$

While separate studies were made for each group of electric and gas utilities and the combined groups for each year 1953-57, space is not available to present the numerous tables of computations of each study, nor is it feasible to do so. However, in order to demonstrate the procedural steps undertaken in the ad-

justment of common stock earnings, Table III, page 666, dealing with ten natural gas distribution companies, is presented.

Regression and Correlation Analysis

IN order to express the relationship between the common stock equity ratios and the adjusted percentage of common stock earnings, three different types of curves were fitted to the data for the 116 electric utilities and the 30 natural gas utilities. The first and simplest type of curve was the straight line with the equation $Y = a + bX$, where X , the independent variable, represents the per cent of common equity to total capital and Y , the dependent variable, is the per cent earned on common equity. When computed, the constants a and b express the relationship between the common stock equity ratio X and the adjusted common stock earnings Y .

A definite relationship was found with the straight-line equation, but in order to get a better fit two other and more flexible types of equations were considered—a second-degree parabolic curve and a hyperbola.⁷ The results of both computa-

⁷ The normal equations for the three respective curves:

A. Straight-line

$$1. \sum Y = Na + b\sum X$$

$$2. \sum XY = a\sum X + b\sum X^2$$

B. Second-degree Parabola

$$1. \sum Y = Na + b\sum X + c\sum X^2$$

$$2. \sum XY = a\sum X + b\sum X^2 + c\sum X^3$$

$$3. \sum X^2Y = a\sum X^2 + b\sum X^3 + c\sum X^4$$

C. Hyperbola

$$1. \sum Y = Na + b\sum \frac{1}{X}$$

$$2. \sum \frac{1}{Y} = A\sum \frac{1}{X} + b\sum \frac{1}{X^2}$$

In each of these normal equations:

N = number of companies included in the studies.

X = per cent of common stock equity to total capitalization.

Y = per cent return on common stock earnings.

a , b , and c = constants to be determined from observed data.

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Per Cent
Return on
Common
Equity

FIGURE I

Hyperbolic Relationship between Adjusted Common
Stock Earnings and Per Cent Common Equity

116 Electric Utilities

1957

$$Y = 4.1761 + 227.6107 \frac{1}{X}$$

16

15

14

13

12

11

10

9

8

7

6

5

20

25

30

35

40

45

50

55

60

Per Cent
Common
Equity

RELATIONSHIP OF CAPITAL STRUCTURE TO COST OF CAPITAL

Per Cent
Return on
Common
Equity

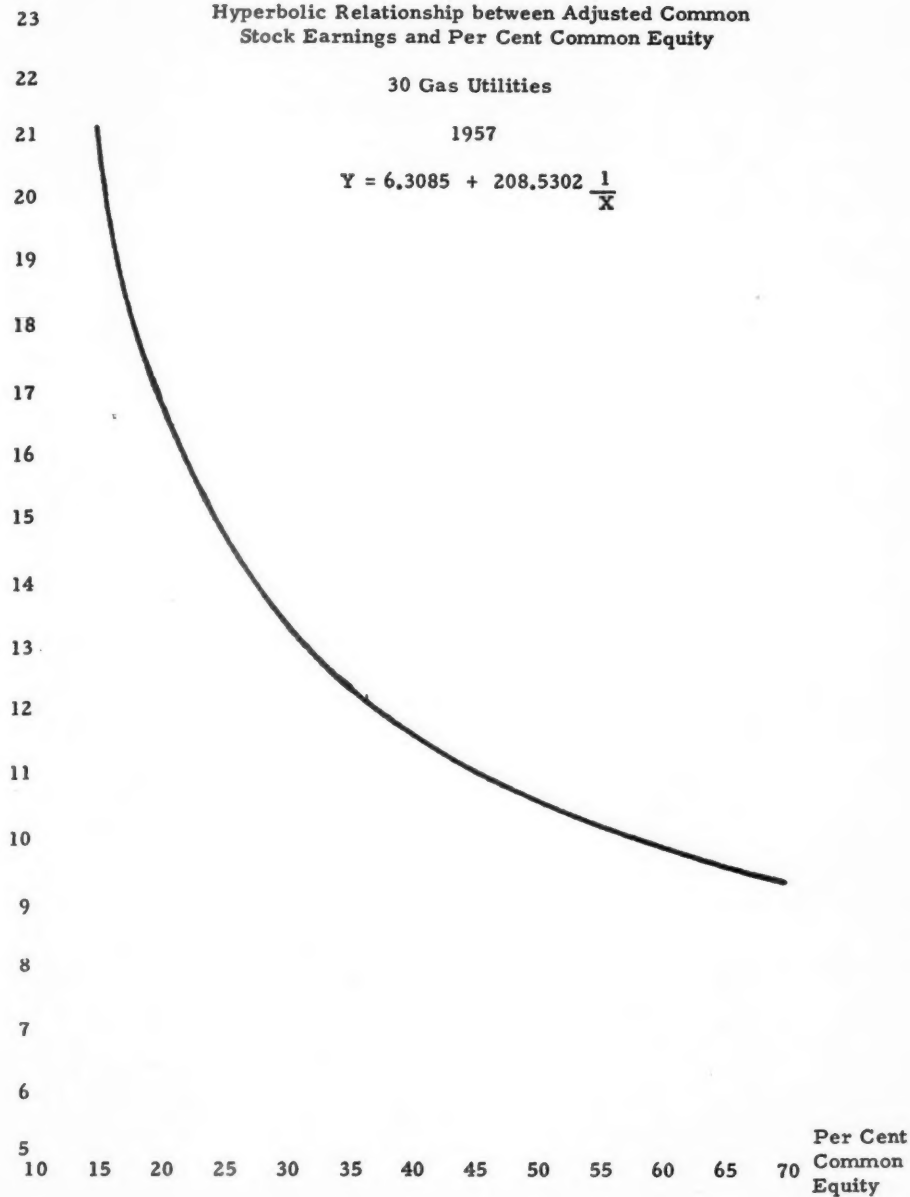
FIGURE II

Hyperbolic Relationship between Adjusted Common
Stock Earnings and Per Cent Common Equity

30 Gas Utilities

1957

$$Y = 6,3085 + 208,5302 \frac{1}{X}$$



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tions revealed that a meaningful relationship exists between common stock earnings and the ratios of common stock equity, the higher earnings rates being associated with the thinner common stock equity ratios. In other words, analysis of the data indicates that the earnings on common stock do vary inversely with the common stock equity ratios, the thinner ratios indicating a higher requirement for the rate of earnings on common stock.

WITH the limited space available for this article, major emphasis will be given to the hyperbolic equation and the related measurements of the relationship between the two variables. There will be presented, however, statistical tables and plotted figures comparing the coefficients of correlation based on the hyperbolic equations.

The hyperbola $Y = a + b 1/X$ was chosen because it showed a better fit of the observed data and also its use avoided the tendency evidenced by the second-degree curve to sometimes reverse direction when nearing the end of the data period. A very small sample of companies with nontypical debt ratios were generally found in this part of the curve.

The equations for each hyperbolic curve express the mathematical relationship between the two variables, but they do not measure the degree of that relationship. In order to do so, the coefficients of correlation (r) and coefficients of determination (r^2) were computed. The latter, (r^2), is the more meaningful measure of the relationship. It expresses the proportion of variance in the common stock earnings ratios that has been explained by relating them to the inverse of the per cent of common stock equity. For example, in

Table IV, page 667, the (r^2) for all gas utilities in 1953 was .7339. This may be interpreted to mean that over 73 per cent of the variations in the earnings are explained by the variations in the common stock equity ratios, but on an inverse ratio basis. Only 27 per cent of the variations in the earnings ratios remains unexplained; *i.e.*, cannot be related to the equity ratio and must be due to other factors.

FITTING the hyperbola to the observed data results in the smoothed percentages of common stock earnings on each 5 percentile change in the common equity ratios. The smoothed common earnings percentages for the year 1957 are plotted in Figures I and II for the electric and gas utilities, respectively, pages 670 and 671.

The level of the common stock earnings percentages is influenced by the overall rate of return earned by the average company in the various groups. Hence, the smoothed common earnings percentages are also shown as a ratio of the overall average return earned. This information is shown in Table V, page 673, for the 30 gas utilities and the 116 electric utilities by years and by groups. When so expressed, it is clear that the per cent earned on common stock varies with the proportions of common stock equity to total capital structure. That is, the "thinner" the common stock equity, the higher the common stock earnings.

Summary and Conclusions

BASED on the empirical studies of the 116 electric and 30 gas utilities, capital structure does influence the overall cost of capital. The volume of financing

RELATIONSHIP OF CAPITAL STRUCTURE TO COST OF CAPITAL

TABLE V
THIRTY NATURAL GAS INDUSTRY STOCKS
ADJUSTED PER CENT COMMON STOCK EARNINGS AS A RATIO
OF TOTAL PER CENT RETURN

Per Cent Common Equity	10 Integrated					10 Distribution				
	1953	1954	1955	1956	1957	1953	1954	1955	1956	1957
	5.72%	6.12%	6.44%	6.92%	6.64%	6.16%	6.56%	7.08%	7.52%	7.16%
10	4.70	4.62	4.69	5.20	5.15	3.66	3.28	4.18	4.05	3.71
15	3.33	3.30	3.36	3.65	3.63	2.78	2.60	3.11	3.07	2.86
20	2.64	2.63	2.69	2.87	2.86	2.33	2.26	2.57	2.58	2.43
25	2.23	2.23	2.29	2.40	2.41	2.07	2.06	2.25	2.29	2.18
30	1.96	1.97	2.02	2.09	2.10	1.89	1.92	2.04	2.09	2.01
35	1.76	1.78	1.84	1.87	1.89	1.77	1.83	1.89	1.95	1.89
40	1.61	1.64	1.69	1.70	1.72	1.67	1.75	1.77	1.85	1.79
45	1.50	1.52	1.58	1.57	1.59	1.59	1.70	1.68	1.77	1.72
50	1.41	1.44	1.49	1.47	1.49	1.54	1.65	1.61	1.70	1.67
55	1.33	1.37	1.42	1.39	1.41	1.49	1.62	1.56	1.65	1.62
60	1.27	1.31	1.36	1.32	1.34	1.45	1.58	1.51	1.60	1.58
65	1.22	1.25	1.31	1.26	1.28	1.41	1.56	1.47	1.57	1.55
70	1.17	1.21	1.27	1.21	1.23	1.39	1.54	1.43	1.53	1.52

Per Cent Common Equity	10 Transmission					Arith. Avg. 1953-57
	1953	1954	1955	1956	1957	
	6.13%	6.13%	6.69%	6.98%	7.15%	
10	3.45	4.99	5.33	5.46	5.34	4.65
15	2.59	3.46	3.68	3.77	3.69	3.26
20	2.17	2.70	2.85	2.93	2.86	2.62
25	1.91	2.24	2.36	2.42	2.36	2.25
30	1.74	1.93	2.02	2.08	2.03	1.99
35	1.62	1.72	1.79	1.85	1.80	1.82
40	1.53	1.55	1.61	1.66	1.62	1.68
45	1.45	1.42	1.47	1.52	1.48	1.57
50	1.40	1.32	1.36	1.41	1.37	1.49
55	1.35	1.24	1.27	1.32	1.28	1.42
60	1.31	1.17	1.20	1.24	1.21	1.36
65	1.28	1.11	1.13	1.18	1.14	1.31
70	1.25	1.06	1.08	1.12	1.09	1.27

ELECTRIC UTILITIES
ADJUSTED PER CENT COMMON STOCK EARNINGS AS A RATIO
OF TOTAL PER CENT EARNINGS

Per Cent Common Stock	41 Companies					31 Companies				
	1953	1954	1955	1956	1957	1953	1954	1955	1956	1957
	5.95%	6.01%	6.07%	6.16%	6.09%	6.26%	6.28%	6.39%	6.41%	6.42%
20	2.46	2.42	2.54	2.41	2.43	2.57	2.57	2.64	2.60	2.52
25	2.12	2.12	2.18	2.11	2.11	2.20	2.19	2.24	2.22	2.16
30	1.90	1.91	1.94	1.91	1.89	1.95	1.94	1.98	1.97	1.92
35	1.74	1.77	1.78	1.76	1.74	1.78	1.76	1.79	1.80	1.75
40	1.62	1.66	1.65	1.66	1.62	1.65	1.62	1.64	1.66	1.62
45	1.52	1.57	1.55	1.57	1.53	1.55	1.52	1.54	1.56	1.52
50	1.45	1.50	1.47	1.51	1.46	1.46	1.43	1.44	1.48	1.44
55	1.39	1.45	1.41	1.45	1.40	1.40	1.36	1.37	1.41	1.38

Per Cent Common Stock	31 Companies					Arith. Avg. 1953-57
	1953	1954	1955	1956	1957	
	6.46%	6.56%	6.51%	6.68%	6.56%	
20	2.58	2.58	2.73	2.82	2.83	2.58
25	2.21	2.21	2.30	2.36	2.34	2.20
30	1.96	1.96	2.01	2.05	2.02	1.95
35	1.79	1.78	1.81	1.83	1.79	1.78
40	1.65	1.65	1.66	1.67	1.62	1.64
45	1.55	1.55	1.54	1.54	1.49	1.54
50	1.47	1.46	1.44	1.43	1.38	1.45
55	1.40	1.40	1.37	1.35	1.29	1.39

PUBLIC UTILITIES FORTNIGHTLY

by these two utility industries during the period 1953 to 1957 has amounted to billions of dollars. This capital, comprised of bond and stock securities, has been raised in a highly competitive market, with about the same proportions of debt and equity that have existed during the past twenty-five years. When these two basic and growing industries have found it expedient and profitable to trade on the equity and on a basis whereby the per cent earned on equity capital has varied almost proportionately with the equity ratio, such experience suggests that in general investors' capitalization rates on bonds or stocks might vary with risk or uncertainty but not in direct proportion as would be expected under a "pure theory of risks."

Theoretical economists will criticize the above conclusions on the grounds that actual earnings on book equities in relationship to capital structures have little or no bearing on costs of capital since such costs must be based on market valuations.

WE readily admit that under the concept of a perfect market which deals

with the effect of financial structure on market valuation and its implications on the cost of capital, an analyst must obviously go to the market to determine the capitalization rate of income accruing to any security. However, it was not the purpose of this article to consider explicitly the theoretical phase of the problem but rather the relation between costs of capital and public utility rate regulation.

BASED on this practical assumption, it seems reasonable to conclude in determining "fair rate of return" through a "cost of capital formula," that regulatory commissions should recognize that "trading on the equity" is an accepted financial practice in utility financing, whereby greater risk is passed on to the common stockholders and is compensated for by an increase in the rate of earnings applicable to the stock. Consequently, regulatory commissions can properly allow a higher rate of earnings on the equity with the thinning of the equity; perhaps not a commensurate increase, but in some proportion to the percentage of equity to total capitalization. For example, a gas transmission or pipeline com-



RELATIONSHIP OF CAPITAL STRUCTURE TO COST OF CAPITAL

pany which maintains an average common equity ratio in the neighborhood of 30 per cent should be allowed a higher return for equity capital than a telephone company with an average equity ratio of 66 $\frac{2}{3}$ per cent. This same principle would apply to particular utilities within any industry.

WHILE the charts and tables indicate a precise percentage earned on common stock equity, varying with proportions of equity to total capital structure, we realize that other variables contribute to the difference in total earnings of utility companies and should be recognized in determining the cost of equity capital. On the other hand, these studies show clearly a definite relationship between common equity returns under varying percentages of equity capital.

The impact of high rates of federal income taxes is another factor for regulatory consideration as to what constitutes a reasonable debt ratio. When a firm must earn \$2.08 to retain \$1 of income, a considerable amount of debt is entirely feasible for most utilities and its existence would tend to raise the market value of the total corporate securities, both absolutely and in relation to earnings.

THE effects of trading on the equity and of taxes on the "costs of capital after taxes" lend support to an optimum capital structure. An optimum capital structure traditionally was conceived to be one that protected the interest of the stockholders by allowing only an amount of debt that would assure the utility against fluctuations of the business cycle and the long-run trend. With the adoption of the "cost of capital" as a primary

method of fixing rates of return, the optimum capital structure theory has been modified to mean one containing the amount of debt which will reasonably protect both the interests of the stockholders and the consumers—and afford the lowest overall cost of capital consistent therewith. Under this viewpoint, an optimum structure will tend to create an equality between the "real" cost of borrowing and the cost of equity. That is, the "concealed" risk involved in a disproportionate debt ratio reflects itself only in part through increased costs of borrowing but also in the cost of equity capital (higher earnings-price ratios).

A utility that is already believed to be too highly leveraged would cause the marginal cost of equity capital to increase if it were to engage in additional borrowing; on the other hand, if the same utility were instead to employ equity financing, this would reduce the marginal real cost of borrowing.

CONCERN with the idea of optimum seems to arise from the lack of correlation already discussed. A committee of the National Association of Railroad and Utilities Commissioners, in its study of an optimum structure, concluded that "the proportions of various types of securities in the security structure do have a substantial effect on the annual cost of capital to a particular utility. It is clear that the annual cost of capital to any given utility enterprise is not an unvarying rate fixed by the risks of the enterprise, but is influenced by the character and terms of the arrangement with investors for the supplying of capital.⁸

⁸ "Proceeding of Fifty-second Annual Convention—1940," National Association of Railroad and Utilities Commissioners, pp. 420-422.

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The optimum structure is not a constant but varies with conditions of the market and with the attitude of investors over the business cycle. It is thus an average purporting to take all factors into account. The optimum capitalization ratios are not exact percentages but are within a range that may be widened or narrowed depending on tax rates, the safety of equity investment, and other factors.

HOWEVER, under the optimum concept, management should be alert to exploit opportunities to reduce the cost of capital by adjusting capital structure. If such a practice were carried out, it would help to establish equilibrium or the "perfect market" theory of the relation between risk and return.

On the other hand, if the average overall cost of capital is independent of capital structure, then there are no opportunities for management to reduce the capital costs even in periods of prosperity or depression. It would seem more realistic to recognize that any functional optimum relation between total bond and stock value and capital structure is unlikely to remain stable over the long run—particularly so if management is afforded an opportunity to minimize capital costs by modifying its capital structure. If this relationship is widely recognized and accepted, public utility firms will adopt it; thus a new relation, but not necessarily a perfect equilibrium, will result.

IN practice this means that management and regulatory commissions which seek to reduce costs of capital by adjusting capital structure must become familiar

with market conditions and act to exploit them. For example, during the period 1946 to 1958, public utility bond yields were low and stock yields were high. For the year 1947, Moody's reported yields on Aaa bonds of 2.59 per cent as against dividend yields of 5.32 per cent and earnings-price ratios of 7.33 per cent for 24 public utility stocks. During this period and with those levels, utilities were offered a golden opportunity to finance with bonds. Ten years later, in 1959, bond yields had increased to 4.49 per cent while dividend yields and earnings-price ratios were 3.94 and 5.76 per cent. The ratio of stock to bond yields had been more than cut in half, from 2.05 to .88 per cent.

Hence, utilities that took advantage of the opportunity to finance through bond issues on very favorable terms in 1946 to 1950 and stock on comparatively favorable terms since 1958 have surely acquired their capital at considerably lower costs than those utilities selling stock in 1946-50 and bonds in 1958-60.

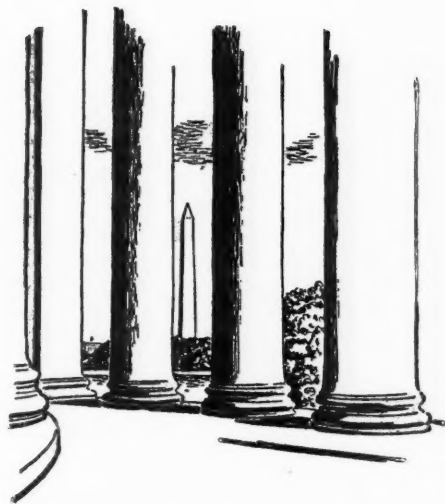
WE conclude that there is a relationship between capital structure and cost of capital in public utility financing. The capital structure of individual utilities, for their own and public interest, should be guided significantly by the cost of capital, with recognition of the fact that the cost of equity tends to vary in some proportion to the percentage of equity to total capitalization. It is not without significance that managements of 116 electric utilities, in exercising their own judgments, have traded on the equity to the extent that the average capital structure for the group contains approximately 38 per cent of common equity.

Washington and the Utilities

Kennedy Seeks Modest Regulatory Reforms

IN his special message to Congress in mid-April, President Kennedy outlined a series of proposals for improving the operation and procedures of the federal regulatory commissions, with particular emphasis on the Federal Power Commission. (For text of President's message, see "What Others Think" department, page 693.) The reaction was generally quite favorable. Even Republican Senators, such as Schoeppel of Kansas and Keating of New York, commended the President and both said that his proposals to improve regulation were "quite sound."

President Kennedy's recommendations for lightening the burden of the FPC, by increasing its size and delegating minor decision making to panels and examiners, encountered no objection whatever. There was a little question about his proposal to make the FPC chairman hold office at the President's pleasure, particularly in view of the strong centralization of powers envisioned for that official, as well as for other regulatory commission chairmen. The White House endorsement (by executive order) of the Prettyman confer-



ence on administrative procedures won immediate approval, since it had bipartisan support during the previous administration.

Specific recommendations for the reorganization of the Federal Communications Commission and the Securities and Exchange Commission were expected to be sent to Congress later in April. Kennedy was believed likely to follow the pattern already announced for the FPC, encouraging the delegation of minor decision making to examiners and organizing the commissions into panels. The FCC already has seven members. On the whole, it was believed that President Kennedy has so far only dealt with less controversial and generally acknowledged reform proposals, mainly in the procedural areas. If he asks no more than this during the present session of Congress, he should have little difficulty obtaining the legislation he wants.

BRIEFLY, the legislation Kennedy calls for would accomplish the following changes: (1) increase the number of FPC members from five to seven; (2) permit division of the commission's work among

commission panels and increase the importance of the examiner; (3) authorize the exemption of some 3,800 small independent gas producers; (4) exempt interstate pipelines from FPC licensing of extensions or replacements of existing lines; (5) establish a permanent Administrative Conference; and (6) require rate increases under suspension to be deposited in escrow.

President Kennedy also said there must be greater policy co-ordination among the regulatory commissions—such as the Interstate Commerce Commission and the Civil Aeronautics Board—so that they do not work at cross-purposes.

THE President's recommendations are designed to cut the so-called "regulatory lag." The presidential message appears to back away from some proposals of Dean Landis, including the establishment of a "White House Overseer" to act as a sort of controlling supervisor for the regulatory agencies. The more modest approach of President Kennedy may be attributed to his knowledge that Congress would not be disposed to relinquish any of its traditional powers over these independent regulatory agencies. This does not mean, however, that Kennedy has abandoned his intention of having more to say about how these agencies are run. It probably means that the President is willing to settle for limited objectives at this time, but will be in a better position to take further steps after more of his appointees are on the job and the congressional opposition to the Landis report has abated somewhat. Since the President's recommendations seem to avoid the more objectionable features of the Landis report, it can be assumed that Congress will be favorably disposed. Bills already are starting to come in.

MAY 11, 1961

Exemption Sought for Small Producers

SEVERAL bills already have been introduced in Congress to exempt from FPC regulation companies producing less than two billion cubic feet of gas per year. They carry out the idea expressed in President Kennedy's message last month asking for the removal of FPC regulation over small producers as an aid to clearing up the backlog of FPC gas cases.

Identical bills have been filed by House Democrats Moss (California), Macdonald (Massachusetts), and Dingell (Michigan). All of these proposals would amend the Natural Gas Act by adding to the exemption section of the law the following:

... or to any transportation or sale of natural gas for resale in interstate commerce which occurs at or prior to the completion of production or gathering by a person whose total sales of natural gas for resale in interstate commerce along or in the aggregate with affiliated producers and gatherers in the calendar year 1960 or in any subsequent calendar year does not exceed two billion cubic feet.

The proposed amendments also provide that if a company's production falls below two billion cubic feet of gas per year, application can be made to the FPC for exemption from the provisions of the law.

REPRESENTATIVE Dingell has estimated that this exemption would cover about 97 per cent of the gas producers. The remaining companies, he noted, account for 80 to 90 per cent of the gas produced. He stated that "this would make the FPC buckle down on the big producers," eliminate the commissioners' excuse of too much work, and halt the

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"incompetence or indifference to the public welfare."

Representative Moss, in a statement accompanying his bill, stated that the legislation would enable the FPC to clear up a heavy backlog of "inconsequential cases," leaving the commission free to deal with the companies which produce the majority of the natural gas sold to interstate pipeline companies. All three bills have been referred to the Committee on Interstate and Foreign Commerce and no hearings have yet been scheduled.

Ban on Gas Rate Increases Urged

OVER on the Senate side, another form of amendment to the Natural Gas Act has been suggested. Senator Gore (Democrat, Tennessee) moved to prevent natural gas companies from putting additional rate increases into effect if they have an earlier increase still awaiting decision by the FPC. Gore introduced a bill to amend that part of the Natural Gas Act which makes it possible for companies to put into effect multiple rate increases pending final decisions by the FPC, subject to refunds to consumers if the commission does not grant the full amount of the increases.

The Gore Bill goes beyond the recommendation of President Kennedy, who proposed in his message that the proceeds from unapproved increases be deposited in escrow pending final decisions by the commission. The President also sought to clear up the backlog of undecided cases by recommending exemption from federal rate control of the smaller companies.

He argued that their sales would account for less than 10 per cent of the gas sold in interstate commerce and that the prices they charge must be in line with the prices obtained by the large producers. For that reason, he said, the smaller pro-

ducers cannot individually affect the general level of prices.

Senator Gore said that placing the tentative rate increases in escrow would be of some assistance, but it would not go far enough. "In my view, the situation cannot be corrected by any measure short of prohibiting rate increases prior to their approval," Senator Gore said. The Senator also disagreed with an outright exemption for the smaller companies.



Fight on Delaware Compact

REPRESENTATIVE Francis E. Walter (Democrat, Pennsylvania) has forecast that President Kennedy would not veto a four-state compact to develop resources of the Delaware river basin after a House Judiciary subcommittee approved the measure. Approval came four days after Interior Secretary Stewart L. Udall said he was opposed to the federal government becoming a full partner in the compact.

The House Judiciary Subcommittee approved Walter's bill unanimously and sent it to the full committee. Under the compact, the federal government, Pennsylvania, New Jersey, Delaware, and New York would work jointly for the formation of a commission to take part in the building of dams and reservoirs, wild life conservation, and water pollution control projects.

Udall, who took officials by surprise when he objected on the ground it would raise constitutional questions as to the federal government's position, had been reported previously in support of the Walter Bill. Representative Walter said the Judiciary Subcommittee took action "only after it considered the views of the federal government in a policy position paper submitted by Udall."

The subcommittee cited four other

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compacts in which the federal government participates. They are the Colorado river compact, the Potomac river compact, the Ohio valley sanitation compact, and the Wabash valley compact. Walter emphasized that the federal representative on each of these is a voting member of the compact commission and that on the Colorado river compact, the representative is the presiding officer.

The subcommittee, headed by Representative Walter, was impressed by the innumerable barriers caused by state boundary lines and the inability of the states, acting alone, to adequately and properly control the Delaware river basin's development problems.

REA Administrator Lauds Co-ops

IN a speech delivered to the Western Farmers Electric Co-operative at Anadarko, Oklahoma, on April 14th, the new REA Administrator, Norman M. Clapp, told directors of that REA-financed co-operative that the co-operative way "represents the middle road between commercial power companies, organized for profit, and government ownership of power facilities. By taking this middle road, REA and its borrowers have made a distinctive contribution to the American economy . . . and it is a contribution which must be preserved at all cost." The REA Administrator said that the new administration is moving toward fulfillment of President Kennedy's pledge to "restore REA to its former rôle of pre-eminence." Among other things, Clapp said, the President has revised the 1962 budget request to increase the amount of funds for REA lending purposes by \$100 million.

Clapp noted that demand for electricity

on REA-financed systems will climb from last year's 29 billion kilowatt-hours to an estimated 196 billion kilowatt-hours by 1985.

"This is one of the new frontiers this administration is talking about," he said, "and we intend to meet it head-on." Stating that he believed it is not enough to judge the desirability of new REA-financed generation and transmission starts from the standpoints of adequacy, dependability, and lower cost alone, he set forth an additional criterion. "We must also be sure," he said, "that co-operatives enjoy a supply of power . . . that will guarantee the co-operative device a permanent place in the American power industry."

HE declared that "as long as co-operatives . . . are under fire from commercial power suppliers, as long as there are tricky twists in wholesale power contracts, as long as territorial integrity is threatened, we are going to have to concern ourselves with the security aspects of each power supply proposal we receive." The REA Administrator added that "You can put us down on the record now as opposed to any power contracts which call for dual rates or any other type of limitation aimed at denying a co-operative any legitimate consumer." He pledged that REA borrowers "will be pressured into no more unwilling alliances with commercial power companies . . ."

Finally, the REA chief announced his support of the "giant power" concept, which envisions interconnecting all the power pools in the nation with giant transmission lines. He said that REA will work with other federal agencies in planning interties to link the big federal hydro projects.

Telephone and Telegraph

Senate Passes Minimum Wage Bill

AFTER some sharp debate the Senate has given its approval to a \$1.25 increase in the minimum wage. The final vote on passage of the bill was 65 to 28. Five days of Senate debate were devoted to this measure and repeated attempts to cut down on the coverage of the bill proved unsuccessful.

Under the terms of the Senate bill the switchboard operators' exemption is altered so that it applies only to independent (non-Bell) companies of less than 750 stations. The final vote was more of a formality than a real test since it had been established that opponents of the bill could not muster enough force to add limiting language to the bill. In effect, this represents a reversal of the setback which the administration suffered when the House killed a bill which had White House backing and enacted, in its place, a much more conservative measure.

The approved House version of this bill in no way altered the present telephone operators' exemption. The administration-sponsored proposal, which the House defeated, had provided for an exemption to "any switchboard operator employed by an independently owned public telephone company which has not



more than 750 stations." This, of course, is the same language as contained in the approved Senate version of the bill.

THE matter of resolving the two divergent bills now goes to a conference committee of the House and Senate. During the last session of Congress the amendments to the Wage-Hour Act never got any further than this conference session—no agreement could be reached between the two versions. It is not expected that this will occur again and most Washington observers believe that the House will accept just about all of the Senate's more liberal language, including that section which is specifically devoted to the telephone industry. When the conferees reach an agreement it can be safely assumed that the Senate and the House will voice their approval and the President's signature will be a routine matter. It is understood that a large segment of the independent telephone companies expected exactly this to happen and that they are already anticipating the increase in the minimum wage by preparing rate increase requests.

A good many of the critics of the administration's proposal to boost the minimum wage based their objection on the fact that the result could easily be an in-

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crease in our already inflated economy. Other groups opposed the boost on the ground that coverage by the act was based on an arbitrary volume of business, rather than on a strict interpretation of interstate commerce.

THE main provisions of the bill are these: The 2.39 million workers now covered by the present law will receive a 15-cent increase in wages four months after final enactment of the bill. Then, twenty-eight months after enactment the full 25-cent increase will go into effect. Those workers who will be newly covered will receive \$1 an hour four months after enactment. Then, over a four-year period, this amount will be increased to a full \$1.25. It is anticipated that the Senate bill would give an immediate pay raise to some 2.6 million workers.

If, as most Washington observers believe, the bill is signed into law, it will represent a significant victory for President Kennedy. The President has long considered this particular bill one of the "must" measures of his 16-point legislative program. For a time it looked as though a coalition of Republicans and conservative Democrats might block the major portions of the President's legislative program. However, the Senate action and the probable House concurrence seem now to indicate that the President's legislative proposals stand at least a fifty-fifty chance of being enacted.

General Telephone Elects New President

LESLIE H. WARNER has been elected president of General Telephone & Electronics Corporation. Mr. Warner succeeds Don G. Mitchell, who has been elected vice chairman of the board.

Mr. Warner is a native of Corsicana, Texas, and attended the University of Wichita, from which he was graduated in 1935 with an AB degree in electrical engineering and business administration. He was graduated from the Harvard Graduate School of Business Administration with an MBA degree in 1937.

Mr. Warner started his career in the telephone industry as a trainee in the Long Lines Department of the American Telephone and Telegraph Company immediately after his graduation from high school in June, 1929. While working as a full-time employee he attended the University of Wichita and subsequently took a leave of absence from AT&T to attend Harvard.

In 1937 Mr. Warner joined the Automatic Electric Company, which subsequently became a subsidiary of General Telephone Corporation. During the course of his career, Mr. Warner has served at various times as president of several of the principal manufacturing and sales subsidiaries of General Telephone Corporation. In 1957 he was elected executive vice president and in March, 1960, he was elected director.

AT&T Disavows Monopoly Aim

THE American Telephone and Telegraph Company has again emphasized that it is not seeking exclusive use of the frequencies assigned by the Federal Communications Commission for satellite communications. James E. Dingman, vice president and chief engineer of the company, stated to the New York city press on April 13th that "the cry of monopoly does not apply here." (See, also, page 684.)

Mr. Dingman further stated that AT&T hoped to have experimental transmission

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in operation in May of 1962 from a site in Maine. In three or four years, he forecast, there should be commercial microwave telephone and television circuits in use "if there are no undue difficulties." He indicated that Britain, France, and West Germany are now working on the project and he predicted that one or more of these countries would be "ready to make tests when the satellite gets there."

The need for communications satellites was emphasized when Mr. Dingman cited figures showing that telephone traffic between the United States and Europe had increased from 2,500 calls in 1927 to 3.7 million calls last year. "As international relations get even more intermingled" this traffic will increase, he stated.

It was indicated that AT&T is willing to share use or ownership of its satellite system with other common carriers. Mr. Dingman estimated that the projected world-wide system of 50 satellites and 13 ground terminals would cost about \$170 million. Present plans call for a satellite weighing about 150 pounds in orbit from about 300 to 5,000 miles above the earth. This would be considered a low or medium-level orbit. The Radio Corporation of America, co-operating with Lockheed Aircraft Corporation and Central Telephone & Electric Corporation, have made a rival proposal for placing a satellite in orbit some 22,300 miles above the earth. The question of orbit height involves the number of satellites to be placed aloft. It is understood that under the RCA proposals fewer satellites would be used.

Neither the National Aeronautics and Space Administration nor the Federal Communications Commission has acted to encourage any of the various proposals. The FCC has established bands in the microwave frequencies for experimental

transmission to and from orbiting satellites and AT&T already operates a microwave network in these bands.

Mr. Dingman stated that the AT&T plan is within the present technological capabilities of scientists and engineers and would be more economical than the higher orbit satellites. Part of the AT&T system would be huge horn antennas weighing some 250 tons. One of these is scheduled for completion within the year. These huge antennas will be protected from the elements by an inflated plastic cover 210 feet wide and as tall as a 13-story building.

SOONER or later the federal agencies will have to make some decision regarding which of the proposals will be accepted. The problem then appears to be how to prevent one company from assuming exclusive responsibility for the entire space communications system. Mr. Dingman has indicated that in any sharing of the AT&T system the cost "would have to have some relationship to use."

While the various companies jockey for position in the space race the passive satellite Echo I continues to make its way around the earth. Echo I was launched from Cape Canaveral on August 12th and the flimsy bag was expected to stay in orbit only a few weeks. Its huge size and light weight make it extremely vulnerable to atmospheric drag and the pressure of sunlight. The orbit of Echo I has changed slightly and originally the drift was toward the earth. Now, however, the pressure is in the other direction and the reflecting satellite is being nudged away from its mother planet. Some scientists forecast that Echo I may stay in orbit until 1964. The satellites which will constitute the space communications system will probably be of the active repeater type.



Financial News and Comment

By OWEN ELY

Crosscurrents in Communications Progress

THE communications industry is becoming increasingly dynamic and competitive, both in the domestic and international fields. The Bell system in the past has furnished about 85 per cent of our telephone service, and the independents some 15 per cent, while Western Union (following its merger with Postal) has done virtually all the telegraph business, its revenues being about 4 per cent of Bell's. But now with many new devices and services being developed in both the telephone and telegraph fields, and the growing importance of data transmission, activities in the telephone and telegraph fields are beginning to overlap, with resulting problems both for the managements and the regulatory authorities at Washington.

With business negotiations conducted more and more by wire, both companies are making a strong bid for the big users of communications facilities—the large corporations, the armed services, etc. Western Union has been rapidly building up its leased line and facsimile services, the revenues from which have more than doubled in the past five years—although the regular message business has shown only a minuscule net gain due to the greater use of the long-distance phone.

The important Air Force contract is expected to add another \$20 million to the current \$56 million revenues from private wire and facsimile services, when the system is completed in 1962. The nation-wide Comlognet (Combat Logistics Network) system is designed to assure faster reaction time in Air Force logistic support, and increased effectiveness in personnel and material controls. It will be the world's largest and most advanced digital data network, and will be capable of handling enormous quantities of data and other information at high speeds.

THE Pacific coast section of the beam system is already in service and work is in progress on the main coast-to-coast project. In addition, existing systems between New York and Chicago will be

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modernized to provide greatly augmented capacity and will be integrated with the new beam work. When this project is completed at an estimated cost of perhaps \$100 million, Western Union is hopeful of using it as the foundation for a nationwide commercial microwave system, which might double system assets. Presumably, completion of this objective would require several additional years.

Extension of Telex—a two-way, customer-to-customer teleprinter service which permits users to dial other subscribers instantly, regardless of distance—is being accelerated by Western Union to meet increasing demand for the new service. The system now connects New York, Chicago, Los Angeles, and San Francisco (also Canadian and Mexican cities) and is being enlarged to reach 45 U. S. cities in 1961, 127 in 1962, and 181 by the end of 1964. International Telex service has also been inaugurated and is being extended.

THE company is currently discussing with the Bell system the modification of existing contracts for the interchange of facilities. These modifications would enable Western Union to use facilities leased from the telephone company for new telecommunications services not now encompassed in these contracts, including alternate record-voice. However, American Telephone and Telegraph (apparently greatly disappointed last year when the FCC opened up the microwave field to practically all users of communications, including the general public) has recently been expanding its wholesale business by offering the new "Telpak" service. This provides large industrial firms and government offices with groups of communications circuits arranged for various uses, including telephone, teletypewriter, data transmission, and facsimile.

Western Union claims that if this service is permitted by the FCC, it may lose some of its valuable leased lines customers. Accordingly, Western Union protested to the FCC that AT&T is "misinterpreting the tariffs" which it had filed on Telpak. According to a recent announcement, the commission has ruled that under the tariff all the channels must be in a single communications band rather than "derived from a number of convenient sources." AT&T has now filed an amended tariff, and the FCC will doubtless render a further decision.

IN the international communications field, American Tel. & Tel.'s proposal to put up 50 satellites with which to receive, amplify, and retransmit telephone talks, TV programs, or data communications to European or other countries, has met with some criticism from other companies. RCA Communications, Lockheed, and General Telephone & Electronics have complained to the FCC that AT&T will enjoy a monopoly in the new field and the assertion has also been made that another method of employing satellites would be more efficient.

It is suggested that one or two "stationary satellites" be used at a much higher elevation (some 22,000 miles *versus* 6,000 for the AT&T satellites). Of course the satellite would not really be stationary, but it would be set to revolve around the earth at a speed corresponding as nearly as possible to the rotation of the earth at that point, so that its rotation would counter that of the earth and it would appear to be motionless.

AT a recent press briefing (see page 682), AT&T officials explained why they prefer to send up a large number of small 150-lb. satellites rather than the one or two suggested by International Tele-

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phone & Telegraph. The Bell satellites would move in polar orbits around the earth, and it would be necessary to transfer the microwave beam from a satellite about to disappear below the horizon, to another which perhaps has just appeared over the opposite horizon. While this would appear to be rather complicated as compared with sending a beam to a stationary satellite, some disadvantages of the latter would be:

Rockets with adequate power to place the proposed satellite in its desired orbit at about 25,000 miles are not yet available; and the delay of about six seconds in speech reception would be a serious operating handicap, not only increasing the elapsed time and cost of a two-way conversation, but also involving serious "echo" problems. There are a number of rockets, such as the Thor-Delta, the Atlas-Agena, and others which are capable of putting the AT&T satellites in a lower orbit, only about 6,000 miles from earth. Also, the delays and echoes in a two-way talk would be much less serious with the lower satellites.

AT&T, having obtained preliminary approval for the use of certain microwave bands for international communications, is pushing its preparations to send up an experimental satellite, and if everything goes smoothly could probably have

the entire system in operation by 1964-65. Negotiations with European countries are already under way. A 1,000-acre tract of land has been purchased near Rumford, Maine, where regular existing domestic microwave channels will not interfere noticeably with the satellite beam. Plans are being rushed to complete the construction of sending and receiving facilities within a year. The company is hopeful that the Space agency at Washington will co-operate by arranging to launch a rocket at Vandenberg Air Base or one of the two other rocket launching sites, to put the first satellite in orbit. AT&T would reimburse the government for the rocket and launching expenses and it would itself furnish the satellites. About \$7 million is to be invested in the Maine station and the entire project (with 40 or 50 satellites) might cost some \$170 million. The first satellite would, of course, be purely experimental, although experience has already been obtained from the satellites Echo and Tyros.

THE Federal Communications Commission (including recently appointed new members) has thus the job of umpiring proposed new communications methods, both domestic and international. Because of the rapid growth in foreign communications and the desirability of opening up channels for sending TV programs

CURRENT YIELD YARDSTICKS
(Standard & Poor's Indexes)

	Apr. 19, 1961	1961 Range		1960 Range	
		High	Low	High	Low
Utility Bonds—A1+	4.44%	4.50%	4.33%	4.72%	4.32%
—A1	4.51	4.54	4.38	4.73	4.36
—A	4.59	4.63	4.56	4.86	4.49
—B1+	4.65	4.74	4.48	5.16	4.56
Preferred Stocks*	4.65	4.78	4.65	4.88	4.57
Utility Common Stocks	3.28	3.62	3.24	4.11	3.61
Yield Spread: A1+ Bonds Exceeded Common Stocks	1.16	0.88	1.09	0.61	0.71

*Twelve industrial and two utility issues (high-grade).

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abroad, it is to be hoped that the satellite issue can be settled in the near future. AT&T in its briefing stressed the fact that it neither has a monopoly in international communications nor desires one. Other companies already in the cable and radio-telephone fields are free to join with it in the use of satellites, on a participation geared to the relative amount of use of the new facilities. If there is too much delay in getting the satellite system started, AT&T will be forced to install more telephone cables, since its foreign telephone business has been increasing at the rate of 20 per cent per annum, which means that it is doubling about every four years.

German "Growth" Utility— Rhine-Westphalia

WITH the increased trend toward public power both in this country and Canada (British Columbia is contemplating taking over utilities in that province) it is refreshing to note that the trend in England and West Germany seems away from government ownership. The conservative British government has disposed of some of the industrial holdings which had been nationalized by the former Labor government. Recently some of the stock of the Volkswagen enterprise, created during the Hitler régime and owned by the German Republic, has been sold to people of moderate means. There seems to be some possibility that more of the stocks of some of the German utilities may eventually get into hands of the public, though there is nothing tangible at this time to support this view.

The largest electric utility in Germany and in Europe is the Rhine-Westphalia Electric Power Corporation (RWE), which was formed in 1898 as a joint stock company to serve the city of Essen and

adjacent areas. By 1939 the plants of the company and its subsidiaries had extended over most of the territories now comprising the Federal Republic of Germany. The area served contains over one-seventh of the entire population of the Republic, and the electricity supplied comprises over 40 per cent of the Republic's total. The company and its affiliated interests have steam and hydro plants with a combined generating capacity of over 5 million kilowatts. The company's power lines are interconnected with others in Germany and in the Netherlands, Belgium, France, Switzerland, and Austria.

THE area supplied by RWE and its subsidiaries embraces large parts of North Rhine-Westphalia, the Rhineland-Palatinate, and Lower Saxony. The company also supplies a large number of prominent industrial enterprises with electric power on the basis of special consumer contracts. In addition to its subsidiaries supplying coal and lignite (almost fully owned) RWE has controlling interests, usually "over 50 per cent," in a number of other electric utilities, both steam and hydro.

As of June 30, 1960, RWE's bonds, mortgages, and loans totaled 544 million Deutsche marks, and there were 69 million Deutsche mark debts to subsidiaries, 308 million Deutsche marks allocated to pension funds, and 11 million Deutsche marks miscellaneous, or a total of 932 million Deutsche marks. This compared with the stockholders' equity of 1,107 million Deutsche marks, indicating a rather high equity ratio. There are several kinds of stock outstanding, including preference, registered, and ordinary shares; all the registered and a substantial amount of the ordinary shares are in the hands of "local authorities," giving them a majority and controlling interest. (It would be interest-

PUBLIC UTILITIES FORTNIGHTLY

OFFERINGS OF SECURITIES BY PUBLIC UTILITY COMPANIES (000 omitted)										
	January 1 to March 31, 1961					January 1 to March 31, 1960				
	Total	Electric Companies	Gas Companies	Telephone Companies	Other Companies	Total	Electric Companies	Gas Companies	Telephone Companies	Other Companies
Long-Term Debt										
Offered Publicly	\$ 265,000	\$ 100,000	\$ 75,000	\$ 90,000	-	\$ 164,500	\$ 312,000	\$ 32,500	\$ 140,000	-
Offered through Subscription	13,260	13,260	13,260	-	-	150	-	-	150	-
Offered Privately	35,500	28,000	6,000	1,500	-	39,200	7,000	15,500	13,700	\$ 3,000
Total	\$ 313,760	\$ 128,000	\$ 94,260	\$ 91,500	-	\$ 223,850	\$ 319,000	\$ 48,000	\$ 153,850	\$ 3,000
Preferred Stock										
Offered Publicly	\$ 36,000	\$ 11,000	\$ 15,000	\$ 10,000	-	\$ 30,300	-	\$ 30,300	-	-
Offered through Subscription	-	-	-	-	-	-	-	-	-	-
Offered Privately	11,000	5,000	2,000	4,000	-	76,700	\$ 70,700	6,000	-	-
Total	\$ 47,000	\$ 16,000	\$ 17,000	\$ 14,000	-	\$ 107,000	\$ 70,700	\$ 36,300	-	-
Common Stock										
Offered Publicly	\$ 66,088	\$ 50,363	\$ 15,725	-	-	\$ 134,499	\$ 15,880	\$ 55,900	\$ 62,719	-
Offered through Subscription	1,036,000	11,026	32,908	\$ 972,067	-	28,176	6,708	-	19,213	\$ 2,555
Total	\$ 1,102,088	\$ 61,389	\$ 48,633	\$ 972,067	-	\$ 162,675	\$ 22,588	\$ 55,900	\$ 81,932	\$ 2,555
Total Financing	\$ 1,442,849	\$ 205,389	\$ 159,893	\$ 1,077,567	-	\$ 793,825	\$ 112,288	\$ 140,200	\$ 235,762	\$ 5,555
SEGREGATION OF FINANCING - BY PURPOSE										
Total Refunding	\$ 70,000	-	-	\$ 70,000	-	-	-	-	-	-
Total Divestment	-	-	-	-	-	-	-	-	-	-
New Money										
Long-Term Debt	\$ 243,760	\$ 128,000	\$ 94,260	\$ 21,500	-	\$ 223,850	\$ 319,000	\$ 48,000	\$ 153,850	\$ 3,000
Preferred Stock	47,000	16,000	17,000	14,000	-	107,000	70,700	36,300	19,213	-
Common Stock	1,082,089	61,389	48,633	972,067	-	162,675	22,588	55,900	81,932	2,555
Total New Money	\$ 1,372,849	\$ 205,389	\$ 159,893	\$ 1,077,567	-	\$ 793,825	\$ 112,288	\$ 140,200	\$ 235,762	\$ 5,555
Total Financing	\$ 1,442,849	\$ 205,389	\$ 159,893	\$ 1,077,567	-	\$ 793,825	\$ 112,288	\$ 140,200	\$ 235,762	\$ 5,555
SEGREGATION OF FINANCING - BY TYPE										
Competitive Bidding	\$ 261,363	\$ 128,363	\$ 15,000	\$ 90,000	-	\$ 135,900	\$ 281,400	\$ 32,500	\$ 122,000	-
Negotiated Sales	\$ 1,037,225	\$ 33,000	\$ 60,725	\$ 10,000	-	\$ 213,399	\$ 46,480	\$ 86,200	\$ 80,719	-
Subscription	-	-	-	-	-	-	-	-	-	-
Competitive Bidding	\$ 53,265	\$ 11,026	\$ 32,908	\$ 9,331	-	\$ 7,748	\$ 5,043	-	\$ 150	\$ 2,555
Negotiated Sales	975,996	-	13,260	962,736	-	20,878	1,665	-	19,213	-
No Underwriting	-	-	-	-	-	-	-	-	-	-
Total Subscription	\$ 1,029,261	\$ 11,026	\$ 46,168	\$ 972,067	-	\$ 28,686	\$ 6,708	-	\$ 19,363	\$ 2,555
Private Sales	\$ 46,500	\$ 33,000	\$ 8,000	\$ 5,500	-	\$ 115,900	\$ 77,700	\$ 21,500	\$ 13,700	\$ 3,000
Total Financing	\$ 1,442,849	\$ 205,389	\$ 159,893	\$ 1,077,567	-	\$ 793,825	\$ 112,288	\$ 140,200	\$ 235,762	\$ 5,555

Esaco Services Incorporated, Financial Department, April 11, 1961.

FINANCIAL NEWS AND COMMENT

ing to have more details regarding the character of this municipal control; apparently, there is little or no central regulation of rates.) Minority preference and ordinary shares are quoted in the German market.

As an indication of system growth, output in billions of kilowatt-hours increased from 10.6 in 1950-51 to 25.2 in 1958-59, an average compounded rate of gain of nearly 12 per cent. There was a gain of only 1.6 per cent in 1958-59 due to the industrial slowdown and weather conditions, but consumer usage continued to increase over 12 per cent; and in the portion of the 1959-60 year for which data are available, consumer use of electricity was 15 per cent over the previous year.

German income accounting differs radically from American methods, hence we shall not try to interpret "gross trading profit" and other accounting items. However, the company's prosperity and increased earnings of recent years are indicated by the fact that dividend payments increased steadily from 2 per cent in 1949-50 to 10 per cent in 1956 and 13 per cent in 1958-59. Moreover, the common stock of this leading German utility has proven just as popular as the stocks of our own "growth utilities." The quotation at Dusseldorf as of February 10, 1961, was 788 Deutsche marks (the 1960 range was 868-505) compared with the 1954 range of only 216-129 Deutsche marks.

First-quarter Electric and Gas Financing Light

THE electric and gas utility companies failed to take full advantage of generally favorable bond market conditions, and excellent opportunities for equity financing, in the first quarter of this year.

However, the huge AT&T stock rights issue (nearly a billion dollars) raised total utility financing for the quarter to \$1.4 billion compared with \$0.8 billion last year.

Electric utility financing was \$205 million, only half as much as last year's first quarter, but gas financing of \$160 million moderately exceeded last year's \$140 million. Equity financing by electric and gas companies totaled only about \$110 million but this was substantially larger than last year's \$78 million. The volume of preferred stock financing was less than half last year's.

The first refunding issue in some time made its appearance—the \$70 million Southern Bell Telephone issue. There was not much change in the pattern of competitive bidding *versus* negotiated sales, and private sales were well under last year's figure.

\$300 Million Eight-state Private Power Grid Proposed

IN our digest of the talk by Editor Hochgesang of the *Electrical World* before the New York Society of Security Analysts (March 16th issue, pages 391, 396), we noted that he urged investor-owned utilities to increase their pooling interconnections and build a grid of their own so that Washington would not take over the job.

In the next issue (March 30th, page 472) President Kennedy's comments on the need for pooling of electric power (both public and private) were mentioned. Recently, a group of investor-owned utilities announced their plans to build a \$300 million extra-high-voltage grid to connect systems in the states of Arkansas, Kansas, Louisiana, Mississippi, Missouri, Nebraska, Oklahoma, and Texas.

PUBLIC UTILITIES FORTNIGHTLY

The grid would operate initially at 345,000 volts but might later be stepped up to 500,000 volts. While most of the generating plants in this area are already interconnected, the new lines would provide increased voltage over a 4,000-mile network. Thus it would allow participating utilities to install bigger generating units and exchange larger blocs of power. The new line would be six times greater in electric power capacity than any other transmission line now operating in the Southwest.

THE 345,000-volt portion of the power grid will stretch about 800 miles south from Omaha, Nebraska, to Beaumont, Texas; and the 230,000-volt lines will extend the grid south and east from Meridian, Mississippi, to the Texas border in southwestern Oklahoma, according to recent reports. The grid might include some public power units, such as the PUD's in Nebraska, but no definite plans have been made in this respect.

Too Much Public Power?

DESPITE the indicated intention of the Kennedy administration to push public power projects, it looks as though two of the biggest projects already in operation—Bonneville and TVA—may have excess power in future. In its 1960 report, the Bonneville Power Administration calls attention to the fact that the Columbia river basin agreement signed with Canada last October (if ratified) "will set in motion a tremendous development of Canadian storage projects and Libby dam that could make available to the U. S. 1,686,000 kilowatts low-cost prime power over the next ten-year period." . . .

"For the first time in nearly fifteen years, Bonneville Power Administration finds itself in a period of surplus power instead of power scarcity."

TVA, which has been formulating plans for building huge steam-generating units, now finds itself with a potential surplus of power as the result of a threatened cutback in AEC requirements.



FINANCIAL DATA ON ELECTRIC UTILITY STOCKS

Approx. Rev. (Mill.)			4/18/61 Price About	Divi- dend Rate	Approx. Yield	Recent Share Earnings	% Incr. in Share Earnings Recent	5-yr. Avg.	Price- Earnings Ratio	Div. Pay- out	Approx. Book Value
\$159	S	Allegheny Power System . .	45	\$1.70	3.8%	\$2.45Ma	2%	3%	18.4	69%	\$18
338	S	American Elec. Power	70	1.88c	2.7	2.46F	4	5	28.5	76	24
74	O	Arizona Pub. Service	66	1.20	1.8	*2.06De	*7	*8	*32.0	58	19
14	O	Arkansas Mo. Power	25	1.00	4.0	1.51De	10	5	16.6	66	11
40	S	Atlantic City Elec.	42	1.20	2.9	*1.59F	*10	*9	*26.4	75	12
175	S	Baltimore G. & E.	32	1.00	3.1	1.48De	5	8	21.6	67	13
9	O	Bangor Hydro-Elec.	58	2.20	3.8	3.37Ma	5	6	17.4	66	30
7	O	Black Hills P. & L.	39	1.60	4.1	2.63Ja	2	3	14.8	61	21
124	S	Boston Edison	71	3.00	4.2	4.10De	11	4	17.3	73	52
34	A	Calif. Elec. Power	22	.84	3.8	*1.04De	*D10	*3	*21.2	81	12
25	O	Calif. Oreg. Power	52	1.60	3.1	*2.15F	*20	*—	*24.2	74	27
11	O	Calif. Pac. Util.	27	.90	3.3	1.28F	D6	1	21.1	70	13
82	S	Carolina P. & L.	53	1.48	2.8	2.25Ma	D1	5	23.6	66	21
37	S	Central Hudson G. & E. . .	33	1.00	3.0	*1.47De	*4	*8	*22.4	68	14
27	O	Central Illinois E. & G. . .	45	1.44	3.2	2.46F	11	7	18.3	58	16
45	S	Cent. Ill. Light	41	1.52	3.7	1.98Ma	D19	4	20.7	77	19
63	S	Cent. Illinois P. S.	64	2.12	3.3	3.03Ma	9	5	21.1	70	21
22	O	Central Louisiana Elec. . .	33	1.00	3.0	1.35Ma	13	7	24.4	74	11
44	O	Cent. Maine Power	31	1.40	4.5	*2.03F	*18	*—	*15.3	69	21
173	S	Cent. & South West	40	1.02	2.6	1.45De	7	7	27.8	70	9
13	O	Cent. Vermont P. S.	22	1.08	4.9	*1.34F	*D4	*2	*16.4	81	14

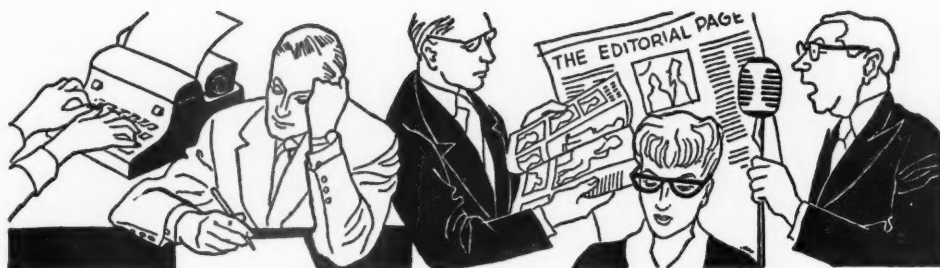
FINANCIAL NEWS AND COMMENT

Approx. Rev. (Mill.)	(Continued)	4/18/61 Price About	Divi- dend Rate	Approx. Yield	Recent Share Earnings	% Incr. in Share Earnings Recent	5-yr. Avg.	Price- Earnings Ratio	Div. Pay- out	Approx. Book Value
153	S Cincinnati G. & E.	45	1.50	3.3	2.23De	14	3	20.2	67	16
8	O Citizens Util. "B"	21	.60	2.9	.78Se	14	6j	26.9	77	4
136	S Cleve. Elec. Illum.	57	1.80	3.2	2.97De	1	4	19.2	61	25
8	O Colo. Cent. Power	39	.75	1.9	1.30De	21	10	30.0	58	12
57	S Columbus & S. O. E.	62	1.80	2.9	3.02F	20	6	20.5	60	25
469	S Commonwealth Edison ...	77	2.00h	5.0h	3.90F	9	8	19.7	51	35
17	A Community P. S.	38	1.00	2.6	1.53De	3	5	24.8	65	13
89	O Conn. Lt. & Power	30	1.20	4.0	*1.48F	*4	*7	*20.3	81	15
656	S Consol. Edison	79	3.00	3.8	*3.88De	*D1	*5	*20.4	77	50
281	S Consumers Power	70	2.60	3.7	3.46F	D4	2	20.2	75	36
96	S Dayton P. & L.	73	2.40	3.3	3.34De	4	—	21.9	72	31
55	S Delaware P. & L.	47	1.20	2.6	1.68Ma	4	7	28.0	71	14
279	S Detroit Edison	54	2.20	4.1	2.66Ma	9	2	20.3	83	28
167	A Duke Power	59	1.60	2.7	2.20De	2	7	26.8	73	22
105	S Duquesne Light	29	1.18	4.1	*1.52De	*5	*5	*19.1	78	10
38	O East. Util. Assoc.	43	2.20	5.1	2.58F	D12	4	16.7	85	26
3	O Edison Sault Elec.	18	.90	5.0	1.11Se	D20	6	16.2	81	9
19	O El Paso Electric	58	1.16	2.0	1.74F	7	8	33.3	67	12
13	S Empire Dist. Elec.	41	1.52	3.7	2.00De	10	7	20.5	76	17
68	S Florida Power Corp.	44	.88	2.0	1.30De	15	11	33.8	68	11
173	S Florida P. & L.	65	1.00	1.5	2.11De	10	15	30.8	47	17
4	O Florida Pub. Util.	29	.72d	2.5	1.34De	5	7	21.6	54	11
205	S General Pub. Util.	30	1.16	3.9	*1.61De	*2	*3	*18.6	72	15
7	O Green Mt. Power	25	1.10	4.4	1.42F	11	4	17.6	77	13
86	S Gulf States Util.	38	1.00	2.6	1.30F	D6	5	29.2	77	13
54	A Hartford Electric	68	3.00	4.4	*3.67De	*1	NC	*18.5	82	43
31	O Hawaiian Electric	82	2.50	3.0	3.68De	6	5	22.3	68	37
116	S Houston L. & P.	97	1.60	1.6	3.29F	8	5	29.5	49	24
37	S Idaho Power	60	1.80	3.0	2.58De	11	6	23.3	70	29
110	S Illinois Power	71	2.20	3.1	2.96Ja	9	11	24.0	74	20
56	S Indianapolis P. & L.	58	1.90	3.3	2.68De	9	7	21.6	71	19
34	S Interstate Power	23	.95	4.1	1.19De	2	4	19.3	80	9
53	S Iowa Elec. L. & P.	52	1.80	3.5	2.64Ma	5	5	19.7	68	21
51	S Iowa-Illinois G. & E.	46	1.90	4.1	2.64F	D2	2	17.4	72	20
51	S Iowa P. & L.	42	1.60	3.8	2.20De	7	4	19.1	73	20
42	O Iowa Public Service	24	.88	3.7	1.37F	16	5	17.5	64	11
17	O Iowa Southern Util.	34	1.48	4.4	2.11F	D1	4	16.1	70	21
68	S Kansas City P. & L.	70	2.32	3.3	3.32F	10	6	21.1	70	31
37	S Kansas G. & E.	59	1.68	2.8	2.81My	2	8	21.0	60	23
57	S Kansas P. & L.	47	1.48	3.1	2.39De	—	7	19.7	62	19
49	O Kentucky Util.	43	1.60	3.7	2.73De	—	6	15.8	59	22
8	O Lake Superior D. P.	26	1.28	4.9	1.83De	8	4	14.2	70	18
145	S Long Island Ltg.	53	1.50	2.8	*2.16De	*7	*8	*24.5	69	20
71	S Louisville G. & E.	57	1.52	2.7	2.69De	9	8	21.2	56	22
13	O Madison G. & E.	34	1.00	2.9	2.02De	10	3	16.8	50	21
5	A Maine Pub. Service	30	1.24	4.1	1.48F	1	4	20.3	84	14
8	O Michigan G. & E.	87	2.00e	5.6e	5.46De	1	8	15.9	37	29
215	S Middle South Util.	35	1.05	3.0	1.53F	9	9	22.9	69	14
35	S Minn. P. & L.	41	1.60	3.9	2.51Ma	13	4	16.3	64	21
16	S Missouri P. S.	23	.72f	5.1f	1.09F	—	5	21.1	66	8
9	O Missouri Util.	37	1.44	3.9	2.00De	19	2	18.5	72	19
49	S Montana Power	35	1.12	3.2	*1.51De	*15	*8	*23.2	74	10
180	S New England Elec.	24	1.08	4.5	1.35De	1	2	17.8	80	15
55	O New England G. & E.	31	1.24	4.0	1.84De	7	8	16.8	67	18
110	S N. Y. State E. & G.	33	1.30	3.9	*1.94F	*9	*8	*17.0	67	19
299	S Niagara Mohawk Power ..	46	1.80	3.9	*2.24De	*8	—	*20.5	80	23
124	O Northern Indiana P. S. ...	40	1.20	3.0	1.71De	10	4	23.4	70	28
183	S Northern States Power ...	33	1.18	3.6	1.49De	1	5	22.1	79	12
13	O Northwestern P. S.	28	1.10	3.9	1.61De	D3	5	17.4	68	13
160	S Ohio Edison	38	1.48	3.9	2.11Ma	3	4	18.0	70	17
62	S Oklahoma G. & E.	39	1.20	3.1	1.49F	4	5	26.2	80	11
31	S Orange & Rockland Util. ...	52	1.20	2.3	*1.67De	*7	*11	*31.1	72	14
20	O Otter Tail Power	38	1.80	4.7	2.30De	D17	1	16.5	78	25
648	S Pacific G. & E.	77	2.80	3.6	4.14De	12	5	18.6	68	42
63	O Pacific P. & L.	47	1.80	3.8	*2.35F	*23	*6	*20.0	77	20

PUBLIC UTILITIES FORTNIGHTLY

Approx. Rev. (Mill.)	(Continued)	4/18/61 Price About	Divi- dend Rate	Approx. Yield	Recent Share Earns.	% Incr. in Share Earnings Recent	5-yr. Avg.	Price- Earnings Ratio	Div. Pay- out	Approx. Book Value
142	S Penn P. & L.	31	1.25	4.0	1.71Ma	D3	3	18.1	73	13
273	S Phila. Electric	61	2.40	3.9	2.84De	D2	4	21.5	81	28
45	O Portland Gen. Elec.	43	1.32	3.1	2.14Ma	14	5	20.0	62	19
89	S Potomac Elec. Power	44	1.44	3.3	*1.96De	*10	*6	*22.4	73	20
113	S Pub. Serv. of Colo.	81	2.10m	2.6	3.21De	21	5	25.2	65	26
394	S Pub. Serv. E. & G.	53	2.00	3.8	*3.01Ma	*22	*3	*17.6	67	28
92	S Pub. Serv. of Ind.	59	2.20	3.7	2.58Ja	D6	2	22.9	85	28
35	O Pub. Serv. of N. H.	23	1.04	4.5	1.40Ma	2	2	16.4	74	14
20	O Pub. Serv. of N. M.	50	1.00	2.0	1.63De	8	11	30.6	61	13
37	S Puget Sound P. & L.	38	1.56	4.1	2.12De	—	8	17.9	74	23
76	S Rochester G. & E.	49	1.80b	6.7b	*3.01De	*D7	*8	*16.3	60	32
11	S St. Joseph L. & P.	37	1.60	4.3	2.24De	5	8	16.5	71	19
81	S San Diego G. & E.	35	1.20	3.4	1.77F	—	9	19.8	68	19
12	O Savannah E. & P.	33	1.12	3.4	1.33De	6	4	24.8	84	14
14	O Sierra Pacific Pr.	30	.88	2.9	1.18F	D8	12	25.4	75	9
306	S So. Calif. Edison	70	2.60k	3.7	*4.59De	*20	*7	*15.3	57	44
56	S So. Carolina E. & G.	53	1.50	2.8	2.05F	12	6	25.9	73	19
8	O Southern Colo. Pr.	29	.90	3.1	1.17N	D1	—	24.8	77	13
297	S Southern Co.	55	1.50	2.7	1.99F	3	8	27.6	75	17
22	S So. Indiana G. & E.	42	1.70	4.0	2.73F	6	3	15.4	62	23
9	O So. Nevada Power	42	.84m	2.0	1.39F	9	5	30.2	60	15
4	O Southwestern E. S.	21	.76	3.6	1.02F	1	5	20.6	75	8
53	S Southwestern P. S.	31	.88	2.8	1.14F	7	6	27.2	74	7
41	A Tampa Electric	41	.72	1.8	1.24Ma	20	12	33.1	58	11
202	S Texas Util.	94	2.08	2.2	3.13F	7	9	30.0	67	22
49	S Toledo Edison	24	.70	2.5	1.12De	—	—	21.4	63	10
20	O Tucson G. E. L. & P.	41	.80	2.0	1.19De	3	8	34.5	67	9
159	S Union Electric	44	1.80	4.1	*2.17De	*19	*5	*20.3	83	18
40	O United Illuminating	33	1.38	4.2	*1.76De	*4	*2	*18.7	78	16
8	O Upper Peninsula Pr.	34	1.70	5.0	2.18De	20	—	15.6	78	20
53	S Utah Power & Light	37	1.32	3.6	1.83F	D1	4	20.2	72	20
161	S Virginia E. & P.	55	1.30	2.4	1.91F	11	8	28.8	68	16
40	S Wash. Water Pr.	51	2.00	3.9	*2.50Ma	—	*3	*20.4	80	29
87	O West Penn Power	71	3.00	4.2	3.68De	6	2	19.0	82	26
14	O Western Lt. & Tel.	61	2.40	3.9	3.55F	10	6	17.2	67	29
34	O Western Mass. Cos.	26	1.20	4.6	1.61De	D3	1	16.1	75	19
141	S Wisc. El. Pr. (Cons.)	43	1.80	4.2	2.71De	D6	7	15.8	67	29
48	O Wisconsin P. & L.	38	1.48	3.9	2.38De	2	7	16.0	62	21
48	S Wisconsin P. S.	34	1.30	3.8	2.05De	8	4	16.6	63	18
Averages				3.5%		6%	6%	21.3	70%	
Foreign Companies										
\$217	S American & Foreign Pr. ..	12	\$.50	4.2%	\$1.21De'59	1%	0%	9.9	41%	\$32
151	A Brazilian Traction	44	.25	5.6	.58De'59	D10	—	7.8	43	28
103	A British Col. Power	36	1.60	4.4	2.37De	D5	3	15.2	67	32
20	O Calgary Power	27	.40	1.5	1.06Se	9	18	25.5	38	6
19	A Gatineau Power	38	1.50	3.9	2.25De	13	2	16.9	67	22
17	A Quebec Power	35	1.60	4.6	2.53De	8	9	13.8	63	27
83	A Shawinigan Water & Power	28	.68	2.4	1.54De	6	6	18.2	44	19

*Deferred taxes resulting from liberalized depreciation are not normalized. If they had been normalized the price-earnings ratio would be higher, and the rate of increase in share earnings would be smaller. D—Decrease. NC—Not comparable. A—American Stock Exchange. O—Over-counter or out-of-town exchange. S—New York Stock Exchange. Ja—January; F—February; Ma—March; Ap—April; My—May; Je—June; Jy—July; Au—August; Se—September; Oc—October; N—November; De—December. b—Also 3 per cent stock dividend (paid January 25, 1961) included in the yield; similar dividends are paid annually, representing balance of earnings. c—Also 2½ per cent stock dividend January 10, 1961. d—Also 2 per cent stock dividend May 1, 1961. e—Also regular annual 3.3 per cent stock dividend (3 per cent in previous years), included in the yield. f—Also regular stock dividend of one-half per cent quarterly, included in yield (paid since 1956). h—Also 2.4 per cent stock dividend December 1, 1960, included in yield; stock dividends are paid annually, reflecting balance of earnings. j—The rate of increase would be 12 per cent if the present number of shares had been used to compute share earnings of past years, instead of using the number of shares actually outstanding at the end of each year. k—Also 4 per cent stock dividend February 24, 1961. n—Also 5 per cent stock dividend February 17, 1961. m—Fifty per cent stock dividend payable January 18, 1961—cash dividend on new stock 84 cents.



What Others Think

The President's Message on the Regulatory Agencies

THE following is the complete text of President Kennedy's message to Congress on the regulatory agencies. The President's recommendations were presented on April 13th and a number of bills already have been introduced which would implement the suggested regulatory reforms.

I. Introduction

THE discharge by the regulatory agencies of this government of the responsibilities that the Congress has placed upon them must be a constant and continuing concern of both the Congress and the President. The responsibilities with which they have been entrusted permeate every sphere and almost every activity of our national life. Whether it be transportation, communications, the development of our natural resources, the handling of labor-management relationships, the elimination of unfair trade practices, or the flow of capital investment—to take only a few examples—these agencies and their performance have a profound effect upon the direction and pace of our economic growth. If it is in the public interest to maintain an industry, it is clearly not in the public interest by the impact of regulatory authority to destroy its otherwise viable way of life.

Furthermore, the industries subject to their jurisdiction are intertwined with our national defense to such a degree that the health of these industries can well be regarded as an index of both our strength and our power to survive. Thus the capacity of these regulatory agencies to meet their responsibilities, and the efficiency with which they dispatch their business, become a subject of tremendous significance to the entire nation.

A. THE responsibilities of the Congress: Both the Congress and the President have a continuing duty to be watchful with respect to the activities of the regulatory agencies. The Congress must see that the statutes under which the agencies are organized and under which they operate adequately set forth the goals that the Congress seeks to achieve. These statutes should neither place responsibilities upon agencies beyond the practical limits of administrative action, nor couch their objectives in such indecisive terms as to leave vast areas open for the free play of agency discretion. The Congress also has the final responsibility to determine from time to time the extent of the influence that these agencies should exert, whether their authority should be withdrawn from or cur-

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tailed in one field or extended to and expanded in another. In addition, the Congress has a rightful concern with both the organization of the regulatory agencies and the fairness and efficiency with which they dispatch their business. Finally, inasmuch as the funds for their operations must be appropriated by the Congress, an intimate knowledge of their operations must be acquired if this function is to be discharged intelligently.

"Invaluable hearings and investigations have been carried on by the Congress over the years, particularly in recent years, illuminating weaknesses in administration and the intrusion of practices that have undercut those standards of fairness and impartiality that the nation rightly expects its government to maintain. Congressional oversight is thus a spur to the formulation and enactment of necessary remedial measures.

"B. THE responsibilities of the President: The President also has his responsibilities with respect to the operation of these agencies. In addition to a constitutional duty to see that the laws are faithfully executed, and other inherent Executive powers, it is his duty to staff the regulatory agencies, granted to him, with men and women competent to handle the responsibilities vested in them and dedicated to the goals set forth in the legislation they are appointed to implement. The President, moreover, is charged in many instances by the Congress with the specific responsibility of removing agency members for misfeasance, inefficiency, or the neglect of duty. Coupled with this is the discretionary exercise of his duty to reward faithful public service by the reappointment of agency members, which requires him to form opinions as to the capability of his or his predecessor's appointees to handle

the affairs that the Congress has entrusted to them. In short, the President's responsibilities require him to know and evaluate how efficiently these agencies dispatch their business, including any lack of prompt decision of the thousands of cases which they are called upon to decide, any failure to evolve policy in areas where they have been charged by the Congress to do so, or any other difficulties that militate against the performance of their statutory duties.

"This does not mean that either the President or the Congress should intrude or seek to intervene in those matters which by law these agencies have to decide on the basis of open and recorded evidence, where they, like the judiciary, must determine independently what conclusion will best serve the public interest as that interest may be defined by law. Intervention, if it be deemed desirable by the Executive or the Congress in any such matter, must be as a party or an intervener in the particular proceeding; and such intervention should be accorded no special preference or influence.

"C. THE need for improvement: I have long felt that too little attention has been given to the overall operation of these agencies by the President, and that too little co-operation between the Congress and the President has characterized the discharge—each in their respective rôles—of their appropriate responsibilities with regard to the operation of these agencies. This cannot continue. For it is now clear that some advance in the methods by which the regulatory agencies dispatch their business is essential if they are to become, as Congress originally intended, effective aids to the growth of our private enterprise system.

"For these agencies are not merely regulatory; they are designed to further

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the expansion of certain facets of our economy, as well as the basic tenets that underlie our system of private enterprise. Delays in the disposition of agency business, and the failure to evolve, other than by a slow case-by-case method, policies essential for our national growth seriously handicap their effectiveness in meeting this function.

"In certain areas, where large subsidies are involved, such as shipping and aviation, this promotional function is apparent. But it also underlies their regulatory activities. In the banning of unfair labor practices or the designation of employee representatives, the National Labor Relations Board seeks to uphold the right of collective bargaining—a right upon which we, as a nation, base our hopes for peaceful and satisfactory labor-management relationships. In the banning of practices that characterized our security markets in the 1920's the Securities and Exchange Commission is more than merely regulatory; it seeks, by its emphasis upon fair dealing, to achieve a saner and sounder outflow of savings into investment. In the banning of monopolistic and unfair trade practices, the Federal Trade Commission seeks to defend those fair trade practices which are necessary for the promotion of our system of private competitive enterprise.

"D. THE caliber of appointed personnel: No amount of reorganization or new procedures can be effective without, or substitute for, high-quality personnel in charge of these agencies. No other single step can accomplish as much. In the past three months I have had the opportunity to bring to many of these agencies men whom I believe are both competent to handle their complex affairs and dedicated to their statutory aims. The Senate of the United States

has co-operated in this effort. I shall continue to pursue that policy as the occasion demands, drawing from within and without the government men of competence and imagination, who are anxious to further the ideals and goals that the Congress has formulated.

"E. CO-ORDINATION of regulatory action: Before turning to a more specific catalogue of our administrative ills and suggestive remedial devices to cure them, there is one particular problem in this area that demands the attention of both the Congress and the President; namely, the lack of co-ordination of regulatory practices. This stems from the fact that the origin of most of our agencies arose out of the practices or the needs of a particular industry. The monopolistic position held by the railroads at the turn of the century brought the Interstate Commerce Commission into being and successively armed it with growing powers. The limitations of the radio spectrum and of our air space called for the creation of the Federal Communications Commission, the Civil Aeronautics Board, and the Federal Aviation Agency. The necessities of maintaining an American-flag merchant marine for the national defense and the promotion of commerce form the basis for the existence of the Federal Maritime Board.

"This history has in many instances resulted in a compartmentalization of regulatory activities—the tendency of each agency to consider only a single industry, or even a single part of an industry. This is wrong. The emphasis must now in the national interest be placed upon the health and the practices of a series of industries, rightfully competitive but which—from a national standpoint—must be viewed as a whole. The problem of mass metropolitan

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transportation is not merely that of the railroads, but of highways and buses, of housing and even of helicopters. The Transportation Act of 1940 sought, so far as surface transportation was concerned, to describe as a goal a national policy that would give each method of transportation its appropriate rôle in our economy. It is disturbing, however, to note that, for example, our common carrier inland waterway traffic, our Great Lakes traffic, our intercoastal and coastal traffic have been withering away, at a pace far more rapid than appears desirable in the light of the low-cost nature of this method of transportation and its potential rôle in the event of war. Of course, no method of transportation should outlive its useful life; but the absence of a firm and comprehensive policy as to what rôle, if any, existing methods should play in our national economy actually is a policy in itself. It is a policy, as a Senate subcommittee only recently observed, of unrestrained and destructive competition guided by private interests rather than that of the public as a whole.

"IN broad areas where the interdependence of industries is apparent, and where we have assumed regulatory functions over all or a portion of them, new and careful articulation of our regulatory efforts is essential. For the pattern now is increasingly one of fragmentation of treatment rather than articulation. Economic effort encouraged by one agency may find discouraging treatment by another. Iron curtains are drawn between agencies operating in the same general area. Their concern is only with the particular segment of the industry over which they have been given jurisdiction, rather than its interrelation to the whole. Indeed, a lack of co-operative effort often

characterizes divisional efforts within a single agency. To correct these regulatory imbalances calls for the shaping of attainable goals and the cessation within agencies and among agencies of jurisdictional strife. Both the Congress and the President can and should play a part in this effort.

"I have already initiated programs in the field of aviation to frame the goals we should set for ourselves for this decade. The attainment of these goals will involve careful, detailed, and foresighted co-ordination on a large scale within the government and several of its agencies. Similarly, a co-ordinated effort is under way to provide a better method for the allocation among governmental and non-governmental users of the radio spectrum, and to improve the regulation over the method of their use. In the field of surface transportation, efforts are being made to work out positions that the administration as a whole should take toward the many remedial measures that have been and are being suggested with respect to its ills. The results of all these efforts will naturally be put before the Congress with such recommendations as they may contain.

II. Sharpening of Agency Responsibility

"A. THE responsibility of the chairman: But all this is not enough. It is essential, first of all, for both the Congress and the President to fix responsibility for the overall operation of an agency on an individual rather than on a group or a committee where responsibility can too easily be dissipated. A movement, now demonstrably valuable, was initiated in this respect by a series of reorganization plans proposed by President Truman in 1950. These plans sought to focalize responsibility within the agencies themselves by giving broad

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managerial powers to the chairman of each agency and in turn holding that chairman responsible, not with respect to his tenure as a member of that agency, but with respect to those managerial powers that attach to his authority as chairman. Nothing in these plans impinged upon the ability of the members of the agencies to act independently with respect to controversies that might be before them for decision, or to participate freely and independently in the shaping of policies that the agency as a whole might seek to pursue. They did, however, pinpoint for the industries subject to their jurisdiction, for the President, and for the Congress and the nation the managerial competence displayed by the agency under the guidance and leadership of its chairman.

“THESE reorganization plans of the 1950's did not succeed in covering all the agencies. Too little authority, moreover, was granted to most agency chairmen. I urge that the chairman's rôle be more clearly defined and his responsibility fixed in every agency. Each chairman should be charged with the authority to staff the agency, subject, of course, to civil service requirements, and, in the important posts, to the advice and consent of his colleagues. Each chairman should be made responsible, subject to statutory requirements, for the form of his agency's organization, so as to enable it effectively to dispatch the business before it. It should be his business to review its budget estimates and subsequently to distribute appropriated funds according to major programs and purposes. In the performance of these managerial duties the chairman should be responsible to the President and serve as chairman at his pleasure, as is explicitly provided with regard to several of the major agencies.

“This centralization of responsibility for the managerial functions of the agency will significantly further their ability to deal with the business before them, and better enable both the President and the Congress to reach more informed judgments with respect to the effectiveness with which an agency pursues its designated programs, and the most wise and efficient use of its personnel. As a first step I shall shortly send to the Congress a series of recommendations which will carry out this concept.

“B. RESPONSIBILITY for agency decisions: One internal administrative device, capable of being immediately adopted by every regulatory agency and already adopted by four important agencies, three since the beginning of this year, needs still wider adoption. This is the practice of assigning to individual agency members the responsibility of being individually responsible for the formulation of the rationale underlying important agency decisions, its quality, and its release to the public under the individual member's name. The practice of rendering anonymous decisions, which has hitherto generally prevailed, has served as a means of escaping precision and responsibility. When the actual source of the opinion is unknown save only that it is issued in the name of the agency, it not only impairs its value as a precedent, but also makes for that very dissipation of responsibility that we are trying to reduce in our administrative action.

“Fortunately, from the beginning of American law, our judges assumed an individual responsibility for uttering the bases which underlay their decisions. This practice has made not only for conscientiousness in undergoing the travail of decision, but has invited ex-

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amination of each proffered brick that would seek a place in the structure of our law. The adoption of this practice by the regulatory agencies would, in my opinion, tend to develop the law that they administer, as well as be a continual challenge to each agency member to make his contribution to the advancement of administrative justice. I am requesting a wider adoption of this practice.

III. The Reduction of Excessive Delays and Work Loads

"A. ALLOCATION of agency activities: The reduction of existing delays in our regulatory agencies requires the elimination of needless work at their top levels. Because so many of them were established in a day of a less complex economy, many matters that could and should in large measure be resolved at a lower level required decision by the agency members themselves. Even where, by the force of circumstance, many of these matters are now actually determined at a lower level they still must bear the imprimatur of the agency members. Consequently, unnecessary and unimportant details occupy far too much of the time and energy of agency members, and prevent full and expeditious consideration of the more important issues.

"The remedy is a far wider range of delegations to smaller panels of agency members, or to agency employee boards, and to give their decisions and those of the hearing examiners a considerable degree of finality, conserving the full agency membership for issues of true moment. Such delegation would not be an abnegation of responsibility if the agency retained a discretionary right of review of all such decisions, exercisable either upon its own initiative or upon the petition of a party demonstrating to the agency that the matter in issue is of

such substantial importance that it calls for determination at the highest agency level. (Nothing in such a procedural change would, of course, disturb the existing rights of a party to seek judicial review of administrative action.)

"A similar procedure—the petition for certiorari—succeeded in clearing up the overburdened docket of the Supreme Court of the United States when it was evolved by the Congress in the Judiciary Act of 1925. Some progress in this direction has already been made by the Interstate Commerce Commission in the past two months, which has delegated to intra-agency boards some 18,000 matters which otherwise would have required the attention of a commissioner, a panel of that commission, or the commission as a whole. But more progress in this agency and other agencies can be made if such a program is supported by concrete measures. I shall shortly submit a series of such measures to the Congress.

"B. THE Federal Power Commission: One situation, however, is not amenable to this general treatment. This is the condition that exists in the Federal Power Commission. In that commission some 4,000 rate increases by independent natural gas producers and pipelines are pending and are still unresolved. Under the existing law, these rate increases are suspended but nevertheless go into effect within six months after their filing, subject to the provision that such sums as are collected in excess of the rate ultimately found to be reasonable are to be refunded to the consumer. This incredible backlog of cases, consisting frequently of rate increases piled upon rate increases, involves hundreds of millions of dollars deemed ultimately refundable to the consumer. Indeed the annual amount of rate increases so sus-

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pending is over \$500 million. The total amount of rates collected pursuant to such increases is well over \$1 billion.

"This situation is paralleled by another just as serious. Under existing procedures and methods for processing applications for pipeline construction, some 193 applications, proposing construction of 5,761 miles of pipelines at a total estimated cost of some \$850 million, were pending before the Federal Power Commission as of the end of February, 1961. It is not to be assumed that all these applications would be granted; but it can safely be assumed that more prompt handling of these matters would release hundreds of millions of dollars for construction, giving substantial employment throughout the country and making firm commitments out of orders for materials that are now merely contingent—orders that in turn would provide jobs for men and women in mills, factories, and foundries.

"(1) EXEMPTIONS: The cause and cure of this administrative log jam—directly responsible for the exclusion of millions of dollars of construction funds from our economy and potentially responsible for an inordinate rise in the price of natural gas—go far beyond the organization and procedures of the FPC. I urge the Congress to enact new legislation reducing the agency's work load in the natural gas area in two ways:

"The commission should be authorized to exempt from rate regulation up to 100 per cent of the small individual producers of natural gas (under 2 billion cubic feet per year) whose sales in interstate commerce to pipelines account for but 10 per cent of the total. The price which the small producers can charge must of necessity be generally in line with those of the larger producers, and thus they

cannot individually affect the general level of prices to the consumer. Such a step must be followed up in the commission by a vigorous handling of all rate cases in the remaining area of jurisdiction, involving hardly more than 270 producers but affecting some 90 per cent of our natural gas production.

"With respect to the processing of pipeline construction permits, the commission should be authorized to exempt from all or part of its procedures up to 100 per cent of those applications by interstate pipeline companies which seek merely to enlarge, extend, or replace existing facilities for the benefit of existing customers only, whenever it is assured that its action will not impair the preservation of reserves necessary to supply those consumers, or permit the indiscriminate invasion of one supplier's territory by another.

"The formulation of these standards will require creative imagination; but the alternative is to defend bureaucracy for bureaucracy's sake.

"(2) ADDITIONAL members: I also urge, because of the crucial situation in the Federal Power Commission, the increase of that commission by the addition of two members. Normally, increasing the members of an agency adds little to its efficiency and may instead only handicap its function. But the situation in the Federal Power Commission is unique. That commission possesses on the one hand jurisdiction over electric power projects and, on the other, under a wholly separate statute—the Natural Gas Act—jurisdiction over the production and transmission for sale in interstate commerce of natural gas. The techniques necessary for the handling of problems in the fields of electric power and natural gas are different. An under-

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standing of one industry does not guarantee a background for dealing with the other. And the chaos and delay now characterizing the gas regulation field may soon increase in the electric power area, where in the coming years the problems surrounding the future of hydro-electric generation will call for reappraisal and hence for added attention.

"With the addition of two more members and the clear discretion to allocate or delegate decision making to smaller panels as previously mentioned, the commission's flexibility would be greatly increased. For example, the chairman could establish three panels of two other members and himself, two working with gas and one with electricity or, one panel of three members could work in one area, while another panel of three covered the other, freeing the chairman for administrative matters. Provision should also be made for the handling of the lesser matters coming before that commission by single commissioners, hearing examiners, and employee boards, subject always to the right of the commission as a whole in its discretion to review any decision.

"**C.** PROTECTION of consumers: In its hearings the Senate Subcommittee on Administrative Practice and Procedure has called attention to the inadequacy of consumer protection in those cases where a requested rate increase goes into effect subject to its subsequent approval by the regulatory agency, with a return to the consumer of any amounts later determined to be in excess. Where these requests are overstated the consumer is required to furnish to the utility the very capital on which he is also required to provide the return, the utility's credit standing is damaged by such a large contingent liability, and the actual return to

each individual ultimate consumer is often impractical, if not impossible, of achievement.

"I, therefore, strongly endorse the subcommittee's informal recommendation to give increased authority to the Federal Power Commission and to any other regulatory agency where this is a major problem, to make sure that any excess rate which is ultimately disallowed will be returned to the consumer—particularly the power to require the deposit of any such collections in escrow until the rate is finally approved.

IV. The Improvement of Administrative Procedures

"**A.** AN Administrative Conference: This nation has had fifteen years of experience under the Administrative Procedure Act of 1946. That act sought to achieve standards of due process and fairness in the handling of controversies before the regulatory agencies both with respect to adjudication and the issuance of regulations. That aim naturally should be maintained and refined. A large amount of work pointed toward objectives of this nature has been undertaken by the legal profession and by various commissions, as well as by committees of the Congress.

"The process of modernizing and reforming administrative procedures is not an easy one. It requires both research and understanding. Moreover, it must be a continuing process, critical of its own achievements, and striving always for improvement. Judicialization—the method of determining the content of a controversy by processes akin to those followed by the judiciary—may well be the answer in many cases. But new procedures for the analysis of facts, based upon more informal methods and mobi-

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lizing the techniques of other disciplines, can be the answer in other cases, provided always that the fundamentals of due process of law are maintained. There can be no single set of conclusive and abiding formulas appropriate for the effective dispatch of all the diverse and ever-changing issues that these agencies are called upon to resolve.

"It is for this reason that I have today issued an executive order calling at the earliest practicable date an Administrative Conference of the United States, to be organized and headed by an illustrious jurist and a distinguished council of lawyers and other experts from the administrative agencies of this government, the bar, and university faculties. This council will consider the questions I have discussed, along with the desirability of making this conference, if it proves itself, a continuing body for the resolution of these varied and changing procedural problems.

"Meanwhile its organization can under the executive order be largely modeled upon the Judicial Conference of the United States created in 1922, which has been effective in unifying the judicial system of the United States and modernizing its procedures. Like that conference, it should bring together the leading members of our regulatory agencies, outstanding practitioners, scholars, and other experts. It can meet under the leadership of its chairman and council, and consider and propose changes in administrative procedure and organization that will make our regulatory processes more effective. It will be provided through the Department of Justice with a secretariat, enabling it to become a day-by-day forum for concern with our many administrative problems.

"The results of such an Administrative

Conference will not be immediate but properly pursued they can be enduring. As the Judicial Conference did for the courts, it can bring a sense of unity to our administrative agencies and a desirable degree of uniformity in their procedures. The interchange of ideas and techniques that can ensue from working together on problems that upon analysis may prove to be common ones, the exchanges of experience, and the recognition of advances achieved as well as solutions found impractical, can give new life and new efficiency to the work of our administrative agencies.

"B. HEARING examiners: None of the regulatory agencies can be completely efficient and effective unless they are staffed by capable hearing examiners. The hearing examiner can relieve the agency of protracted adjudicatory processes, speed the disposition of the cases, and serve as a valuable aid in the decisional process. The importance of his position should be recognized by adequate provisions for responsibility and compensation.

"The standards for appointments, compensation, promotion, and removal of hearing examiners are set forth in § 11 of the Administrative Procedure Act of 1946. But the application of those standards has been a continuing source of controversy. The examining procedures permit broad discretion without sufficient assurances of high qualifications.

"The determination of the proper grade and pay levels has been burdensome, involving almost continuing review of individual positions since 1946. The promotion process is inexact and has led to a concentration of almost all the positions in grade GS-15, the highest regular grade in the classification. At the same

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time, further promotion has become virtually impossible.

"IN order to improve the stature and quality of hearing examiners, I recommend the following:

"1. Section 11 of the Administrative Procedure Act should be amended to remove the requirement that hearing examiners receive compensation in accordance with the Classification Act. Instead, they should receive salaries equivalent to that prescribed for a grade GS-16 or a grade GS-14. The higher salary would apply to examiners in the major regulatory agencies, whose decisions have a broad economic impact on the national welfare.

"2. In order to recognize the administrative management responsibility of the chief hearing examiner in each agency I recommended that he receive \$500 per annum additional compensation.

"3. The Civil Service Commission should review and raise its current examining standards and practices for hearing examiners. The increased responsibilities recommended in other sections of this message will require the most qualified people for these key positions.

"It is my hope that raising the selection standards and increasing the compensation of the hearing examiners will improve both their stature and their general level of competence.

Conclusion

"THE preservation of a balanced competitive economy is never an easy task. But it should not be made more difficult by administrative delays which place unnecessary obstacles in the path of natural growth or by administrative incompetence that has a like effect.

"These reasons alone justify the President and the Congress in having a continuous concern with the operations of our regulatory agencies. The cure for a particular ill may lie in legislation; it may, on the other hand, lie in administration. But given a lack of watchfulness on the part of both the President and the Congress, maladministration or ill-conceived policies can endure and multiply to the consequent detriment of our economic and social welfare. It is our task to co-operate in achieving those legislative and administrative steps necessary to enable these agencies to fulfill more effectively their rôles of promoting and protecting the national interest."

—JOHN F. KENNEDY

"OUR aim is a Welfare Society rather than a Welfare State. We recognize that the state must remain responsible for those for whom other sources of welfare are not available; but in a liberal society we should look increasingly to the release and stimulation of private endeavor and voluntary agencies of service and mutual aid to diminish the rôle of the state."

—LORD BEVERIDGE,
Quoted in a publication of the
British Labor party.

The March of Events



Public Works Bill Introduced

LEGISLATION providing for a billion-dollar federal investment in public works, to be begun as quickly as possible, was introduced in the House last month. The sponsors, Democratic Representatives Henry S. Reuss of Wisconsin and John A. Blatnik of Minnesota, labeled their bills the "Re-employment Act of 1961." Under their proposal, the federal government would put up \$1 for \$2 raised by

communities for local public works which they cannot afford without help.

"Preference is to be given to projects which can be started fast and finished quickly, so that the fundamental object of providing additional jobs can be achieved with a minimum of delay," Reuss said in a prepared speech. Projects already included in state and local programs would not be eligible for the financial aid.

Colorado

Telephone Bill Signed

GOVERNOR McNichols signed into Colorado law a bill to make it a crime to refuse to give up a party telephone line for an emergency call. The measure requires that a caller using a party line must surrender it when another person comes on the line and says it is needed

for an emergency call. Refusal to surrender the line is a misdemeanor punishable by up to ninety days in jail and a fine of \$1,000.

Also fixed by the new law are penalties for persons who force others off a party line by falsely claiming that they are making an emergency call.

Missouri

Rehearing on Tax Case Denied

THE state supreme court, without comment, recently denied further hearing of its decision knocking out major exemptions in the state's use tax law. New hearings had been sought by Southwestern Bell Telephone Company and five railroads in Missouri which claimed they

were discriminated against because of the exemptions. The six utilities sought to have the entire law declared unconstitutional.

It was contended by the railroads that the use tax law delegated unwarranted power to tax to the judicial branch of the government. This argument was made

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against a clause in the law providing that if any section of the law was declared unconstitutional, the rest of the act should stand. Southwestern Bell maintained that if exemptions in the use tax were unconstitutional, then the sales tax has been unconstitutional, because it, in effect, exempted sales outside the state for use inside Missouri.

Pending in the state legislature was a bill that redrafts the sales and use tax laws into a single act, with the complained of exemptions applicable both on goods bought within and without Missouri.

Several corporations, including airlines and railroads, as well as some manufacturing plants, have threatened to leave if the tax question is not resolved.

New York

Phone Fraud Bill Signed

GOVERNOR Rockefeller signed into New York state law a legislative bill making it a misdemeanor to obtain telephone service by charging calls to another's number or credit card without permission

or by charging the service to nonexistent numbers.

The new law will become effective next October 1st, with the maximum penalty for violation being a \$500 fine and a year in jail.

Oregon

Hydroelectric Commission Abolished

GOVERNOR Hatfield has signed into Oregon law a legislative bill abolishing the State Hydroelectric Commission.

Under the bill, the duties of the commission, which include acting on applications to build power dams, are transferred to the state engineer, who will refer them to the State Water Resources Board.

Vermont

Proposed Legislation Unconstitutional

ARULING by the state attorney general's office holds unconstitutional proposed state legislation that would prohibit sale of appliances by public utilities.

A legal assistant to the attorney general said the legislation was "arbitrary, con-

fiscatory, and an unreasonable infringement of personal and property rights . . . repugnant to the constitutional guaranties of the Fourteenth Amendment."

State Representative Alexander Drysdale of Bennington, who sponsored the proposed legislation for the Vermont Appliance Dealers Association, said he would withdraw the bill because of the opinion.

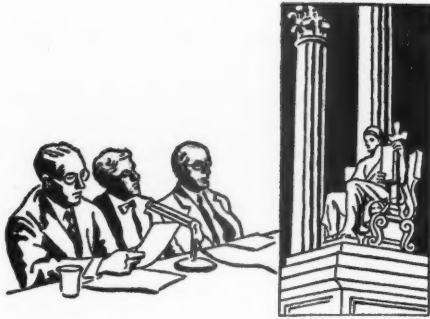
Wisconsin

Phone Rates Reduced

THE state public service commission has announced rate reductions totaling \$1,785,000 annually by the Wisconsin Telephone Company, which has some 800,000 subscribers in Milwaukee and 96

other exchanges in the southern and lake shore areas of the state.

Commission Chairman Leonard Bessman said the reductions were not by commission order, but by mutual agreement after negotiations.



Progress of Regulation

Trends and Topics

Authorization of Security Issues Subject to Dividend Restriction

COMMISSIONS, both state and federal, have expressed concern over high debt ratios. Sometimes, however, issuance of new debt securities is necessary in order to acquire property or to finance construction even though an unduly high debt ratio may result. In such cases commissions may impose dividend restrictions.

Wisconsin Commission Imposes Restriction

An example of this procedure is noted in the recent decision by the Wisconsin commission in the Stockbridge & Sherwood Telephone Company case (37 PUR3d 313). The commission authorized the issuance of debt securities which would increase the debt ratio to about 67 per cent, and it imposed a limitation upon dividends to continue until the debt ratio would be reduced below 60 per cent of total capitalization and surplus. Thereafter the dividends would not be permitted to exceed 50 per cent of current annual common earnings until reduction of the debt ratio below 50 per cent.

Previously the same commission had followed a similar procedure in other cases. The commission, in one case, authorized the issuance of bonds in an amount which would create an undesirably high debt ratio while additional construction was necessary, but it imposed the condition that no dividend should be paid pending completion of an imminent reorganization, in order that current funds on hand might remain available for construction (68 PUR NS 1).

A certificate authorizing the issuance of preferred stock to finance capital expenditures, in the opinion of the Wisconsin commission expressed in another case, should provide that cash dividends on common stock be paid only from earnings subsequent to a specified date, unless and until the stated value of common stock (excluding earned surplus) is equal to at least 50 per cent of total capitalization, where common stock equity includes the entire amount of surplus earned as of that date, and where the proposed financing will result

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in a decrease in the ratio of common stock equity to total capitalization from 65 per cent to 51.6 per cent (8 PUR3d 107).

The same commission, in authorizing a stock dividend, imposed a condition that an amount of the undistributed surplus account equal to the undistributed stock dividend should not be available for the declaration and distribution of cash dividends. There was a possibility that part of the stock dividend would not be declared and distributed until some future and presently undetermined date (14 PUR3d 223).

Action by Other State Commissions

The Georgia commission authorized the issuance of securities to acquire property at a price reflecting a substantial amount of intangible capital in excess of original cost of tangible plant, but it imposed a dividend condition. It was provided that the company should not pay dividends on common stock until such time as the earned surplus balance was equal to or exceeded the balance representing intangible plant, and, further, that the earned surplus created from the dividend limitation should be reserved to the extent of the remaining intangible plant balance until this balance was fully amortized or otherwise disposed of (75 PUR NS 29).

The Georgia commission, in authorizing the Atlanta Transit System to issue securities and evidences of debt, in order to acquire the property of Atlanta Transit Company, imposed a condition that dividends be limited to \$5,000 a year so long as indebtedness to the seller is outstanding. In addition, dividends were limited to actual earnings after provision for depreciation on a cost basis and for tax liabilities (4 PUR3d 59).

The Massachusetts commission, in authorizing Marlborough-Hudson Gas Company to issue and sell stock, the proceeds to be applied to the payment and cancellation of promissory notes used to pay for extensions, additions, and improvements to plant and property, imposed a dividend condition. It required that no dividend should be paid in any year in excess of 5 per cent upon the capital stock until the fair structural value of the plant and land should be made equal to the amount of the company's outstanding stock and debt, by expenditures from income either to reduce the indebtedness or to make additions to the plant (PUR1915E 121).

The New York commission once stated that common stockholders are not in any position to object to any reasonable requirement that the financial condition of a public service corporation proposing to issue bonds shall be made sound and that no dividends shall be declared which are not earned (5 PUR NS 456). Objections had been made to approval of the issuance of securities by Long Island Lighting Company pursuant to an agreement which placed unusual limitations on the powers of management.

The New York commission, in authorizing Rochester Gas & Electric Corporation to issue securities, imposed a condition that no dividends should be declared upon outstanding common stock or voting trust certificates until a pending rate proceeding should be concluded. The commission then ruled that the company should not, after accepting the order and issuing the securi-

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ties, be granted a rehearing on the question of commission jurisdiction to attach the condition (16 PUR NS 494).

Restrictions Imposed by Federal Commissions

The Securities and Exchange Commission considered the question of dividend restrictions in a case where the capital structure of a corporation had within it the potentialities of abuse by reason of the fact that the common stock had a disproportionately small but controlling investment. The commission imposed a condition that no dividends be paid on common stock until payment of a short-term note. The commission considered this necessary and sufficient to protect the interest of preferred stockholders in accordance with the standards of § 7 of the Holding Company Act (36 PUR NS 13).

The Securities and Exchange Commission, in authorizing a reduction in the stated capital of a subsidiary of a holding company, imposed a condition requiring notice to the commission of an intention to pay dividends on common stock. This stock was held entirely by the holding company, and the reduction would enable the subsidiary to abolish a deficit in its earned surplus account which would otherwise follow from the write-down of its plant account. This would enable the board of directors, who were controlled by the common stockholder, to exercise power over dividends which they would not be able to exercise if the deficit in the earned surplus were not so cured (49 PUR NS 423).

The Securities and Exchange Commission, in authorizing a subsidiary to issue common stock, imposed, with the company's consent, a condition restricting the payment of cash dividends. The company's articles of association lacked certain protective provisions for preferred stockholders which were recognized as desirable but difficult to obtain because a two-thirds vote of preferred stockholders was required to effect a charter amendment (72 PUR NS 305).

The Federal Power Commission, in authorizing Midwestern Gas Transmission Company to expand its capacity and provide gas to a new market, imposed a dividend restriction in the certificate of convenience and necessity. The program was to be financed largely with long-term debt and convertible notes, resulting in a debt ratio of 81.6 per cent. The commission noted that the prospective common stock ratio of 18.4 per cent of total capitalization after financing met the requirement used in prior cases that there be at least 15 per cent common equity. But the commission said that if the 5 per cent unsecured notes be treated as long-term debt—which is what they really were—then the debt total came to 81.6 per cent of total capitalization. Such ratio would exceed the standard of not more than 75 per cent debt used by the commission.

It was observed, however, that these notes were to be payable either in cash or in preferred stock at the option of Midwestern, and the testimony indicated that Midwestern would try to pay them off in cash out of earnings. The commission therefore "condoned" this apparent departure from its standards but required that Midwestern pay no dividends on common stock

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until the interim notes would be converted into preferred stock or the total long-term debt, including the notes, would be reduced to 75 per cent or less of the total capitalization (28 PUR3d 380).

Review of Current Cases

Benefits of Deferred Tax Funds Allocated in Rate of Return Allowance for Pipeline Company

UNDER its interim order procedure, the Federal Power Commission determined two principal issues in the Northern Natural Gas Company rate proceeding, prior to completion of the entire hearing in the case. These issues are the allowable rate of return, including the treatment of accumulated deferred taxes, and the allocation of certain costs between jurisdictional and nonjurisdictional business. A rate of return of $6\frac{1}{4}$ per cent on a net investment rate base was found to be reasonable and adequate.

Equity Return

This allowance of $6\frac{1}{4}$ per cent took into account a return of 10.5 per cent on equity. Northern claimed 11.7 to 12 per cent for equity, while the staff recommended 10.2 per cent. Comprehensive market data were introduced to demonstrate the level of required earnings, but the commission considered the most pertinent index a comparison of the recent earnings-price ratios of the major pipelines, taken in relation to return on book value of common stock and variations in the business risks and advantages of the individual companies. For the past six years, Northern's earnings-price ratios have been slightly higher than those of other pipelines. During the same period, however, the company has experienced no unusual difficulty in raising substantial sums of money through the sale of debt and equity securities.

These facts, said the commission, considered in the context of other market and business data, indicate that the return claimed by Northern was unreasonable. On the other hand, Northern's return on book value of common stock has been less than that of other pipelines. The commission thought this suggested a return somewhat higher than the 10.2 per cent recommended by the staff.

Division of Tax Fund Benefits

The overall rate of return of 6.25 per cent also allowed a return of 1.5 per cent on the company's deferred income tax accruals of more than \$8 million. The commission's previous decisions with respect to the treatment of liberalized depreciation have not dealt with the computation of rate of return but with the question of normalization of taxes. The commission has ruled in favor of normalization with a reserve for future taxes. The instant case, for the first time, directly presented the question of what return, if any, should be allowed on the portion of capital investment accumulated by accruals for deferred taxes.

The staff urged that the deferred tax funds should be included in the capital structure as debt at a zero rate of return, asserting that such funds have been provided by the consumer at no cost to the company. Northern, on the other hand, contended that it should be permitted to invest the tax accruals in facilities, which

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would become a part of its rate base, without including such investment as a part of its capital structure and without requiring any reduction in the rate of return to take account of earnings on these facilities.

The company maintained that the funds do not belong to the customer, pointing out that he pays the same amount for income taxes whether or not the company takes advantage of liberalized depreciation. It was suggested that Congress intended a profitable use of the funds by the company and that the allowance of a return on them might improve the company's financial standing and reduce its cost of financing, to the benefit of the customer.

Effect on Rates

The commission observed that the use of these funds for income-producing purposes results in higher rates to the consumer because the income tax on additional income earned on such capital must be included in the cost of service. Furthermore, if the company borrowed money needed for investment, rather than obtaining funds through the use of liberalized depreciation, the entire amount of interest would be deductible for tax purposes, and the taxes included in the cost of service would be reduced.

Since the use of liberalized depreciation without deducting accrued tax deferrals from the rate base, or taking them into consideration in fixing a rate of return, would increase the ratepayers' burden, the commission found that it must reject the company's position. But since the staff's proposed treatment would deprive the company of any earnings on the accumulated taxes, as well as any benefits from the use of liberalized depreciation, its proposal was also unacceptable. It would be extremely shortsighted on the

commission's part, it was observed, to pass on to the consumer all of the benefits of the use of tax deferrals and leave the company no reason to continue taking liberalized depreciation.

Best Solution

The best solution, said the commission, is to divide the benefits between the company and the ratepayer. The major portion should go to the ratepayer, and the company should be allowed only enough of the benefits to induce it to continue to use liberalized depreciation. The commission determined that a return allowance of 1.5 per cent on the deferred tax account would provide the necessary incentive.

One dissenting commissioner declared that the company should be allowed the full advantage of the tax deferrals, though without any disadvantage to the ratepayer. He would allow a return of 3.27 per cent on such funds.

Allocations to Field Sales

Decision on the system-wide allocation of costs was deferred until the record has been completed. Apparently this issue will involve matters of rate level, rate design, and competing fuel prices. However, without deciding what general principles should be applied in a system-wide allocation, the commission decided at this stage of the case to accept on a temporary basis Northern's allocation of costs to certain field sales, considering their temporary character. Thus, costs were treated as equivalent to revenues of 13.5 cents per Mcf from the sales, and the revenues were credited against the cost of service. The company pointed out that continuation of these sales was necessary to permit it to take from the Kansas Hugoton field the allowables assigned it by the Kansas commission, and to make up its

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underproduction in that field. *Re Northern Nat. Gas Co. et al. Opinion No. 342,*

Docket Nos. G-19040, G-19041, March 7, 1961.



Production and Transmission Cost Allocations Determined For Natural Gas Pipeline Company

THE Federal Power Commission allowed Kansas-Nebraska Natural Gas Company, Inc., a rate of return of 6.5 per cent, increasing the examiner's recommended allowance of 6.35 per cent. The commission found that the examiner's common equity allowance of 10 per cent was inadequate and granted 10.8 per cent. It was observed that Kansas-Nebraska was not as strong financially or as favorably situated geographically as several other pipeline companies which had been allowed between 10 per cent and 10.5 per cent for common equity. In view of this fact, the commission thought Kansas-Nebraska should be allowed a higher equity return. An allowance of 10.8 per cent would be sufficient and enough above the "bare-bones" cost of money, as shown by earnings-price ratios, to cover costs of financing and make equity securities attractive to investors.

Production Cost Allocation

Only about 22 per cent of the company's system sales were jurisdictional. The two main sources of supply were the Julesburg basin in western Nebraska and the Hugoton and Unruh fields in Kansas. Gas is produced in the Julesburg basin for about 15 cents per Mcf and in the Hugoton field for about 12 cents.

The commission adopted the examiner's and the staff's view that the production costs should be allocated between jurisdictional and nonjurisdictional customers on a pooled or rolled-in basis, considering the system as a whole. Kansas-Nebraska, determining production and gathering costs separately for the Jules-

burg basin and the Kansas supply, recognized that gas flowed as load conditions and supply conditions required.

Although the gas did not, at the time of this proceeding, flow from Nebraska into Kansas, the system was so integrated that the Kansas customers benefited from the supply of gas and sales in Nebraska, and the Nebraska customers benefited from the supply and sales in Kansas. Therefore, the commission thought it most in keeping with reality to consider that the two sources of gas were available to the system as a whole and were not segregated for the benefit of one or another group of customers.

Transmission Cost Allocation

Kansas-Nebraska and the staff suggested that an Mcf-mile method be used in the allocation of transmission costs, while two interveners urged that the allocation be made on a system-wide basis. The state of Kansas asked for a method that would give effect to the difference in transmission distance cost factors between Kansas intrastate service and the Nebraska interstate service.

Under the company's method, costs were allocated to the jurisdictional customers as a class, and to the nonjurisdictional customers as a class on the basis of three-day peak demands and annual volume of gas by each class, and also on the basis of the average distance of each class from the source of supply. Under the Mcf-mile method, a jurisdictional sale and a nonjurisdictional sale located at the same distance from the source of supply and having similar load characteristics

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would be charged with exactly the same dollars of cost.

Here arose the question of determining how many points of jurisdictional and nonjurisdictional sales should be grouped for the purpose of deriving equitable unit costs and rates. The commission was of the opinion that a single zone system, as contended for by Kansas-Nebraska and the staff, was too large to produce equitable results.

The examiner's system-wide method made no allowance for the distance factor. The distance of all sales from the sources of supply was, in effect, averaged, so that as far as cost of transmission was concerned, they were treated alike, whether near the sources of supply or at great distance, whether jurisdictional or nonjurisdictional.

The commission adopted the Mcf-mile method but established two separate zones: The first zone included the areas nearest the sources of supply and the second included the more remote areas. These zones included jurisdictional and

nonjurisdictional sales, and an allocation was made between these categories in each zone. In this way, the commission pointed out, adjacent jurisdictional and nonjurisdictional sales would be treated on a more comparable basis and yet the distance factor would be given effect.

Jurisdictional sales in each zone were made at approximately 38 per cent load factor based on the average three-day peak for the test year. Under the allocation, the differential in the cost between the two zones was 11.9 cents per Mcf. However, the commission thought that to establish abruptly this wide differential would be disruptive. It would throw the entire rate increase on the second zone, while rates would be reduced in Zone 1. It was concluded that a differential of five cents between the two zones at a load factor of 49 per cent would be sufficient to give effect to the distance factor without being too disruptive to the historical rate patterns. *Re Kansas-Nebraska Nat. Gas Co., Inc. Opinion No. 343, Docket No. G-12391, March 8, 1961.*



Favored-nation Clauses Held Unreasonable And Triggering of Clause Denied

TWO-PARTY favored-nation clauses in a natural gas producer's contracts with a pipeline purchaser were held by the Federal Power Commission to be contrary to the public interest. The contracts of the producer, The Pure Oil Company, provided that if the contracting purchaser, El Paso Natural Gas Company, should pay a higher price for gas in the producer's area than that paid to Pure, the latter's price would be increased immediately to equal such higher price.

The commission refused to declare them void or voidable, however, observing that if these provisions were stricken and the contracts fell, the producer's sales

might then constitute ex parte offerings of gas and rates for the gas could be changed at will, unimpeded by contractual limitations. It appeared to the commission that the harmful effects of escalation provisions could best be reduced by means of regulations issued in appropriate future proceedings.

Pure's favored-nation clauses, said the commission, are, in their nature and effects, inherently unreasonable. Their mechanical and arbitrary operation lacks any substantial relationship to the factors which bear on the value of gas or on a determination of a reasonable level of rates for it. The triggering of an escala-

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tion provision is no justification for the commission's giving effect to a filed increase, it was said, at least if the rate is in excess of the established Policy Statement 61-1.

El Paso indicated that escalation increases under clauses like those of Pure, if activated by West Texas' sales, would total some \$18 million annually. Such a cost increase would eventually become a burden on the consuming public. While rate increases under such clauses lack any reasonable expectation of being substantiated, the damage resulting from their inflationary impact is accomplished when they are put into effect, even though they are subject to refund. Another undesirable effect is the heavy administrative burden the commission has to bear in passing upon a large number of escalation increases.

Free Market Argument

Pure argued that these "flexible forward pricing" provisions are the product of competing forces of supply and demand operating in a free market, and that by giving effect to free market influences in fixing prices for sales, gas is directed to its most efficient and socially desirable uses. As to giving effect to the benefits of a free market, said the commission, it is fallacious to assume that the price for only one or a few sales, which is all that is needed to activate a large number of escalation provisions, is representative of the market conditions generally.

In fact, Pure's escalation provisions were regarded as the opposite of giving effect to prevailing market prices.

In the light of continuing increases in the price of gas in recent years and the present high level of prices, escalation clauses, such as Pure's, have by now outlived whatever economic function they

may have had years ago, the commission declared.

Escalation Clause Not Activated

Pure's contract prices to El Paso were 10.6 and 11 cents per Mcf. Pure claimed that its escalation provisions were activated, or "triggered," by the purchase of gas by El Paso from West Texas Gathering Company at an initial rate of 18 cents. Pure thereupon filed a rate change to 16 cents per Mcf. This increase became effective under the Natural Gas Act in mid-1959, subject to refund, and the commission ordered a hearing. It was held, however, that the West Texas price was not in fact higher than Pure's price in view of considerations other than the actual cents per Mcf, as contemplated in the escalation provisions. Therefore, the escalation provisions were not triggered by the West Texas purchase.

The principal difference between Pure's gas and that of West Texas, according to the presiding examiner, lay in the large average volumes and high pressures of gas available from the West Texas system and the manner in which the wells supplying West Texas could be utilized in periods of peak demand to meet the heavy requirements upon the El Paso system. West Texas gas was much like gas from a convenient storage field.

The commission agreed that the West Texas gas had unusual properties of deliverability which, in conjunction with the location of the reserves, gave it exceptional usefulness for peaking purposes in the operation of El Paso's pipeline system. A contention that West Texas was set up and controlled by El Paso to defeat the activation of the Pure contract provisions was rejected. The evidence did not establish the proposition. *Re The Pure Oil Co. Opinion No. 341, Docket No. G-17930, March 3, 1961.*

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Allocation of Electric Rate Increase Properly Recognizes Air-conditioning Costs

THE Missouri supreme court upheld a commission rate decision (29 PUR3d 254), holding that it was not unduly discriminatory for an electric company to impose somewhat higher rate increases upon residential and commercial customers than upon industrial users. The company had expended considerable capital and incurred increased labor costs on behalf of residential and commercial customers by reason of their increasing use of air conditioning. It was no defense that a given residential customer might not use air conditioning, for rate classifications must be made according to practical and reasonable groupings. It would be impractical to meter separately the current used in a residence for air conditioning and that used for lights, etc.

Advertising Expenses

Besides the discrimination question in this case, it was argued that the commission had improperly allowed advertising expense paid to a private utility power group for alleged "political propaganda." Opponents claimed that this expense should be disallowed because it would not be allowed for federal income tax purposes.

In further support of disallowance, a Federal Power Commission opinion was cited (29 PUR3d 209). However, it appeared that this opinion, though dealing with private power advertising, related to accounting procedure and not to rate making.

During the test year the company had contributed to the cost of nine advertisements of the power group. Only one advertisement was placed in evidence. The commission had found that the principal purpose of the advertising was to create good public relations and stimulate a demand for service. It was the commission's view that management should control such expenditures as long as they are within reason, and the commission was unable to find that this advertising expense would not result in benefit to the ratepayers.

The court refused to interfere with the allowance of this expense, observing that, in any event, the disputed item was, relatively speaking, "almost infinitesimal"—less than two-tenths of one per cent of operating revenues. *Missouri ex rel. Dyer et al. v. Missouri Pub. Service Commission*, 341 SW2d 795.



Inhabited Status of Area Sought for Certification Not Controlling

THE Nevada commission has granted California Interstate Telephone Company permission to purchase and acquire the certificate and assets of the Glenbrook Company upon a showing that the purchase price was not excessive in view of the area's growth potential, that the exchange was badly in need of conversion to dial operation, and that the purchaser was financially able to carry

but the needed service improvements.

The commission approved the purchaser's proposal that the rates applicable to another of its exchanges be made applicable to the purchased exchange. In addition, the company was granted permission to eliminate rate concessions and free service a number of subscribers in the purchased exchange had been receiving.

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Statutory provisions, the commission pointed out, prohibited the granting of any special rates other than those filed by the utility.

Bell Telephone Company of Nevada had protested the applicant's attempt to enlarge the certificated service area by including a geographic segment, contending that no service had been requested by any subscriber within that segment. The commission took note that the area in question was not occupied by any inhabitants who had indicated any need for service, but pointed out that such a factor, in itself, was not controlling on the issue of whether the certificate should include the area.

The question as to when an uninhabited area should be assigned to an exchange area is one which has no positive answer, the commission said. Many factors would

govern in all types of situations. It appeared to the commission that exchange boundaries should be established and that in establishing such boundaries the commission had to look into the future and allow for expected growth.

Exchange areas, the commission said, are not exclusive. In event the future years of growth do not come as anticipated, or the growth is in areas other than expected, any commission could consider other applicants for service or could enlarge or decrease previously granted exchange areas. As in planning for future development of construction, an exchange area can and should be established with the future in mind rather than just the present. The certificate was granted to include the area. *Re Glenbrook Co. et al. CPC No. 506, Case No. 1290, March 13, 1961.*



Order Requiring Electric Service Remanded for Trial on Issues of Fact

THE appellate division of the New York supreme court remanded for trial a lower court order (35 PUR3d 522) which directed Consolidated Edison Company of New York, Inc., to serve Gem Credit Corporation. It believed that the pleadings in the lower court proceeding raised issues of fact. Without taking proof, the lower court had decided such issues on the basis of pleadings and affidavits. The appellate division concluded that this was error. It said that the issues of fact which had been raised should have been resolved after a trial and the taking in open court of all the proof bearing upon them.

Pending the trial and the entry of a final order, Consolidated Edison was stayed for discontinuing service to the petitioner's premises.

The lower court had held that a peti-

tion for an order directing an electric company to serve certain premises should not be dismissed on the grounds that the applicant has an adequate remedy at law for damages, since suing for penalties would not obtain the required service. It also had decided that the company was required to serve the applicant residing on the second floor of premises to which the service had been discontinued for nonpayment of an outstanding bill. Despite the company's allegation that the application was a subterfuge to obtain service for another, there was evidence that the applicant had occupied the premises in question for seven years, had not previously had an account with the company, and had shown a willingness to pay its bills and post a deposit. *Gem Credit Corp. v. Consolidated Edison Co. of New York, Inc. March 20, 1961.*

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No Property Right in Telephone Number

THE U. S. court of appeals has affirmed a district court's reversal of a bankruptcy referee's order directing a telephone company to furnish referral service. Referral service was characterized as the company furnishing the new numbers to persons calling the old numbers.

The principal issue went to the jurisdiction. This, in turn, depended, in so far as summary jurisdiction, on whether the debtors had a property right in the old telephone numbers. They had been continued in possession, and each of them had been offered the choice of one of three alternatives: They could discontinue all telephone service; they could discontinue existing service under the old numbers and, on proper application, have new numbers assigned to them; or they could continue existing service under the old numbers under arrangements acceptable to the company for payment of the outstanding charges.

Four of the debtors in possession had chosen the first alternative. The others had elected to avail themselves of the second alternative. New numbers were assigned to them and regular business service was made available. Thereafter, they had applied to the referee in bankruptcy for an order either restraining the company from changing the old numbers at the places of business, or, in the alternative, furnishing referral service. Since the numbers assigned to the debtors had already been changed, the referee granted

the alternative relief, which action the district court reversed.

Tariffs Part of Service Contract

The express provisions of the tariffs and rules on file with the commission, said the court, clearly forbid the finding of a property right in the telephone numbers. Tariffs and rules on file with the commission are part of the contract for service between the company and the subscriber.

In unambiguous language, the tariffs stated that the assignment of a number to a subscriber's telephone service would be made at the discretion of the company. The subscriber has no proprietary right in the number.

The understandable purpose of the referee to facilitate the organization of the debtors does not warrant modification of tariffs promulgated with the authority of the appropriate administrative agency nor construing them contrary to their clear meaning, the court said. Neither can such a desire support summary jurisdiction otherwise absent.

In view of the finding of lack of summary jurisdiction, it was not necessary for the court to consider the contention of the telephone company that in no event could it be required in the proceeding to make available to the debtors a service not provided for in any of its tariffs. *Slenderella Systems of Berkeley, Inc. et al. v. Pacific Teleph. & Teleg. Co.* 286 F2d 488.



Cost of Water Service Apportioned to Fire Protection on Capacity Basis

THE Maine supreme court ruled that the commission properly apportioned additional revenues of a water district between municipal and general service

use on the basis of capacity requirements rather than estimated actual use of water.

Water previously obtained by the district from the Penobscot river was satis-

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factory for municipal fire fighting use. But the fact this water was unsatisfactory for drinking purposes impelled the district to find a source of pure water and construct new transmission facilities. In order, however, to supply the city's fire fighting needs of 5,500 gallons per minute, as compared to general service requirements of 4,200 gallons per minute, it was necessary to construct a larger transmission main than would have been required for general service. The result of the new investment was a pure, adequate water supply but higher rates, and, based on capacity requirements, the larger part of the increase fell upon the city of Bangor. The city objected to this burden, contending that the new system was developed mainly to bring better drinking water into the city and that it contributed nothing to improved fire protection. Charter of the water district, au-

thorized by the legislature and accepted by the voters of the city, required the discontinuance of the use of water from the Penobscot river, and, in planning the new system, provision for fire protection was necessary. Operation of two systems would be impracticable. The court held that the commission gave proper consideration to the purposes for which the water was used.

It was further held that the commission properly declined to consider the fact that much of the real estate of Bangor is tax exempt. No reasonable theory for considering such property in the allocation of water rates between fire protection and general use service was apparent to the court. Nor was the commission required to consider a "tax equivalent" in allocating the costs of service. *City of Bangor v. Maine Pub. Utilities Commission et al.* 167 A2d 6.



Original Cost Rate Base Adjusted to Reflect Year-end Figures

THE New Jersey commission adjusted a water company's original cost rate base to reflect actual figures available at the end of the test period. The company had submitted figures based upon nine months' actual and three months' estimated for the year 1960. The actual figures showed that the rate base at the end of the year 1960 was \$17,520 less than had been estimated by the company. In addition, the latest figures indicated that \$7,828 of additions proposed to have been added during 1961 were in fact included

in the rate base at December 31, 1960.

Finally, the record indicated that the engineering inventory disclosed that several adjustments in the total amount of \$5,207 should be made to the book balances of utility plant at original cost. In all, the rate base was reduced by \$30,555, from the company's figures of \$1,567,797. The rate increase granted would provide a return of 6.1 per cent on the original cost rate base. *Re Somerville Water Co. Docket No. 6012-903, March 27, 1961.*



City Empowered to Expropriate Electric Plant

A LOUISIANA appellate court ruled that the city of Thibodaux has a right to expropriate the distribution system and

franchise of an electric company in newly annexed territory even though the franchise was granted by the parish au-

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thorities prior to the annexation. A lower court's declaratory judgment in favor of the municipality was upheld.

That the franchise was granted before the service territory was annexed would not affect the municipality's right of eminent domain. Nor would expropriation of the franchise violate the constitutional provisions against impairment of contracts or deprive the company of property without due process of law. And the possibility that the city might charge higher rates than the company charged would not restrict the power to ex-

propriate. The court indicated that a constitutional provision against monopolies and restrictions of trade was inapplicable.

A contention that commission approval was a condition precedent to municipal expropriation was rejected. A commission order prohibiting the transfer of utility property without the consent of the regulatory body does not pertain to a change in ownership brought about by the exercise of the right of eminent domain, it was pointed out. *City of Thibodaux v. Louisiana Power & Light Co.* 126 So2d 24.



Working Capital Reduced for Errors in Lag, Bond Interest, and Tax Normalization

THE California commission, in granting the Pacific Gas and Electric Company a gas rate increase which would produce a return of 6.25 per cent on the original cost rate base, reduced the working capital allowance from \$14,485,000 to \$9,149,000. Both the company and the staff had arrived at approximately the same gross working cash requirement, but they had parted ways on the deduction from gross requirement of amounts not supplied by stockholders.

The difference between the amount ultimately determined by each was contained in one component—the average amount of cash available as a result of the company's payment of expenses lagging behind the collection of such expenses in the form of revenues from ratepayers. The company, in determining the dollar effect of this payment lag, had used its revenues with respect to collections rather than expenses. It had sought thereby to increase its revenue requirement by the compounding process of obtaining a return upon the return portion of its revenues, the commission said. The staff had properly determined such lag by relating

both payments and collections to expenses.

Bond Interest

Another factor contributing to the greater working cash allowance claimed by the company was its failure to treat bond interest as an item of expense. For purposes of determining working cash allowance, bondholders, unlike stockholders, were considered by the commission to be a class of creditors. The sole justification for including such an allowance in the rate base, said the commission, is to provide the stockholders a return upon that portion of their invested capital which is necessary in the utility's operations and upon which they would not otherwise receive a return.

Tax Normalization

The staff had normalized the income tax effect of accelerated amortization. The company had contended that, since the staff deducted the income tax reserve for accelerated amortization from the rate base, it should not have included the accrual to such reserve in the income

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taxes used in the determination of working cash. The commission disagreed. It pointed out that the company's position was at odds with its computation of test-year income taxes, in which it had normalized the effects of accelerated amortization.

Ad Valorem Taxes

The company's estimate of taxes other than income was substantially higher than the staff's. The difference, amounting to \$926,000, lay principally in the item of ad valorem taxes. In estimating such taxes for the test period, the company had used

directly trended assessment ratios and tax rates. The commission was of the opinion that the simple trending of such tax factors of previous years did not produce reliable estimates.

The use of the latest available assessment ratios in tax rates had been the uniformly applied practice of the commission and had proven to be the most reasonable method of estimating future ad valorem taxes.

The staff had used such a method, which the commission approved. *Re Pacific Gas & E. Co. Decision No. 61713, Application No. 42225, March 21, 1961.*

Other Recent Rulings

Malicious Abuse of Process. The U. S. court of appeals held that the fact that railroads pursued objections to a proposed merger of two motor common carriers through a series of hearings and appeals did not constitute malicious abuse of the process of the Interstate Commerce Commission since the railroads, as parties in interest, were privileged to appear before the commission for the purpose of attempting to thwart the further expansion of one of the carriers. *Gaddis et al. v. Great Northern R. Co. et al.* 284 F2d 524.

Radio Operator's License Renewal. The U. S. court of appeals held that the FCC had properly dismissed an application for renewal of a radio operator's license where the applicant refused to answer whether he had ever been a member of the Communist party or a member of any organization advocating the overthrow of the government by force and violence since such questions were pertinent to the public interest and to

proper standards of qualifications. *Borrow v. Federal Communications Commission*, 285 F2d 666.

Party in Interest. The U. S. court of appeals held that an allegation of a broadcast licensee that the licensing of a new station would result in the loss of a number of listeners outside of its contour because of interference from the new station was sufficient to constitute the protestant an aggrieved party entitled to a hearing. *Interstate Broadcasting Co. v. Federal Communications Commission*, 285 F2d 270.

Injunction Denied. The U. S. district court denied the Interstate Commerce Commission's application for an injunction restraining a motor common carrier from repetition of violations of the Interstate Commerce Act where the carrier had previously pleaded guilty to criminal charges predicated upon the same violations, had paid fines substantially in excess of the total amount involved, and

PROGRESS OF REGULATION

had taken steps of a permanent character to prevent repetition of the violations, while the ratio of violations to the entire business was very small. *Interstate Commerce Commission v. Pilot Freight Carriers, Inc.* 189 F Supp 875.

Hearing Not Required. The U. S. court of appeals held that the CAB is not required to conduct a hearing before issuing an order temporarily suspending service by an airline to certain points pending a final decision on an application for a certificate amendment. *Springfield Airport Authority et al. v. Civil Aeronautics Board*, 285 F2d 277.

No Grandfather Certificate. The U. S. district court held that an interstate motor carrier of citrus juices in bulk in tank trucks was not entitled to a grandfather certificate and not exempt from the requirement of obtaining a certificate under the Transportation Act, notwithstanding that the carrier had been a bona fide transporter of such commodity prior to 1958 or that the commodity might have been exempt prior to that time. *Milk Transport, Inc. v. Interstate Commerce Commission et al.* 190 F Supp 350.

Certificate Amended. The Nebraska supreme court ruled that the state commission properly clarified and corrected, by amendment nunc pro tunc, a motor carrier certificate so as to include on an authorized route intermediate points which had been omitted in the original certificate through an oversight. *Re Bower*, 106 NW2d 689.

De Facto Crossing. The New Jersey superior court held that the commission had not erred in directing a railroad to furnish crossing protection at a point where a paved street crossed the track,

when the municipality had maintained the street and the public had used the crossing for over fifty years and the railroad had not taken any steps to restrain such usage so that the site became a de facto public crossing. *Erie R. Co. v. New Jersey Pub. Utility Comrs.* 166 A2d 597.

Relitigation Prevented. The Ohio supreme court held that its dismissal of an appeal from a commission order, on jurisdictional grounds, was sufficient to prevent relitigation between the same parties. *Specialized Transp., Inc. v. Ohio Pub. Utilities Commission*, 171 NE2d 340.

Dangerous Crossing. The Ohio supreme court held that the commission had not erred in ordering the installation of flasher lights at a grade crossing which had heavy east-bound and west-bound traffic, notwithstanding that motorists approaching from either side had unobstructed views of one-half mile in either direction. *Pennsylvania R. Co. v. Ohio Pub. Utilities Commission*, 171 NE2d 515.

Jurisdiction over Railroad Train Discontinuance. The Ohio court of appeals held that the commission is the agency entrusted with passing upon applications for authority to discontinue railroad train service, and the supreme court, not the common pleas court, is the only court with jurisdiction over the subject matter of a city's action to enjoin such discontinuance. *City of Columbus v. New York C. R. Co.* 172 NE2d 138.

Knowledge of Filed Tariff Rates. An Ohio court held that a shipper is presumed to have notice of any rate between two points when that rate is duly established and filed with the commission and published in accordance with its regulations,

PUBLIC UTILITIES FORTNIGHTLY

and that the only conduct of the carrier which can relieve the shipper from liability for undercharges is that which allows the statute of limitations to expire. *Railway Express Agency, Inc. v. Youngstown Plant & Flower Co.* 171 NE2d 220.

Motion Properly Denied. The Wisconsin supreme court held that the trial court had not abused its discretion in denying a motion for leave to remand the record in the review proceedings to the commission for further evidence showing a railroad enjoyed a substantial profit in a certain year in a case where the commission had authorized the railroad to effectuate a central agency plan and eliminate many one-man stations. *Village of Cobb et al. v. Wisconsin Pub. Service Commission*, 107 NW2d 595.

Agency Station Discontinuance Denied. The Louisiana commission denied a railroad's application to discontinue an agency station where the evidence showed that the station was making a profit and the public was making use of it. *Re Texas & N. O. R. Co.* Docket No. 8379, Order No. 8278, November 29, 1960.

Protection of Rights. The Colorado commission, in enlarging an electric company's certificated area, stated that a utility which has served an area for a long period of time and which, at great expense, has acquired valuable rights to serve the area should not be deprived of such rights, nor may it be curtailed or limited in exercising its rights to extend and expand service in the area, so long as such expansion does not impair or endanger service to others, or other areas entitled to its service. *Re Gunnison County Electric Asso., Inc. Application*

No. 17989, Decision No. 55709, January 12, 1961.

Agricultural Limestone Rate Differential. The Wisconsin commission ordered railroads to publish and file, in proper tariff form, scales of carload rates for the transportation of agricultural limestone providing a maximum two-line differential of 28 cents a net ton over the single-line rates and a three-line differential of eight cents a net ton over the adjusted two-line rates. *Re Railroad Carload Rates on Agricultural Limestone*, 2-R-3877, December 22, 1960.

Withdrawal of Rates. The Colorado commission held that common carriers which had filed minimum commodity rates which shippers had used for three years could not be permitted to withdraw such rates for the sole and only reason that the traffic was moving by a private carrier, but that the common carriers had to show that the rates were unjust and unreasonable and noncompensatory. *Re Colorado Motor Carriers' Asso. I&S* Docket No. 444, Decision No. 55772, January 23, 1961.

Gas Producer Price Accepted. The Federal Power Commission adopted an examiner's decision approving the sale of natural gas produced in Texas Railroad Districts 3 and 4 at an initial price of 14 cents per Mcf with a one-cent periodic increase for each five years and a provision for the reimbursement of three-fourths of any increase in state severance tax, in view of substantial evidence indicating that the proposed price was not out of line in the area. *Re Valley Gas Transmission, Inc. et al.* Docket Nos. G-19618 et al. January 31, 1961.

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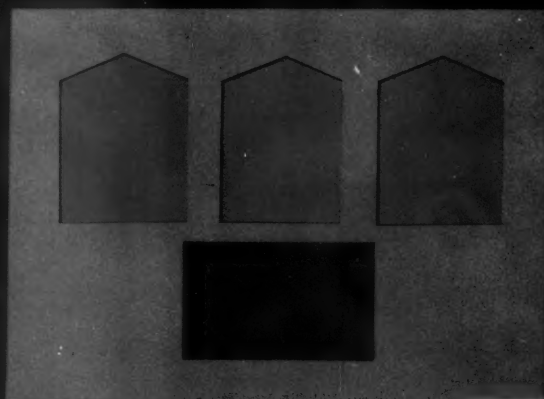
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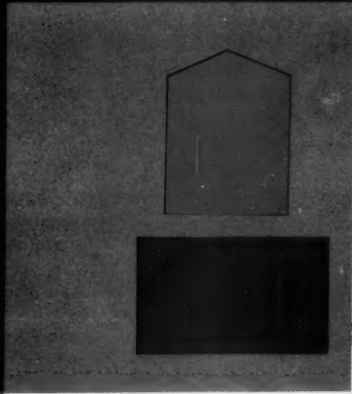
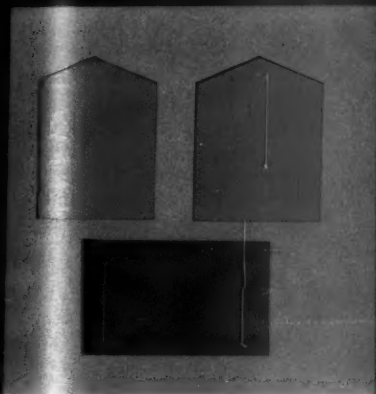
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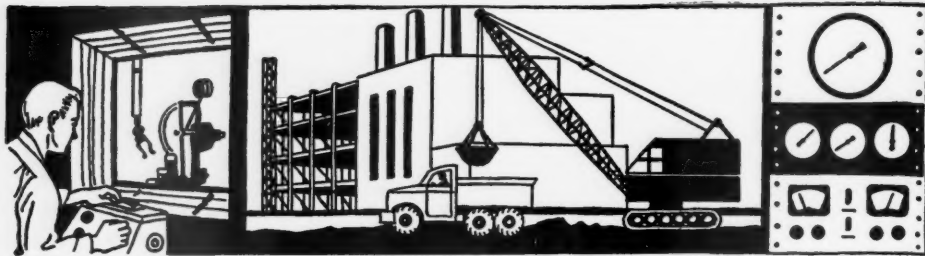


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LILCO Plans to Spend \$250,000,000 In Next Five Years

LONG Island Lighting Company, Mineola, Long Island, New York, expects to spend about \$250,000,000 on construction in the next five years, a little more than they spent in the last five years, according to Errol W. Doebler, chairman of the board. 1961, however, will be a relatively light year for construction—about \$38,000,000.

LILCO at present has a 185,000 kilowatt electric generator under construction for operation in 1963 at the Barrett station in Island Park and expects to have a unit of about 250,000 kilowatts in operation in 1965 at their 256 acre Northport site in Suffolk county.

Central Louisiana Electric Expanding Facilities

A \$400,000 construction program to extend 34,500 volt transmission lines 35 miles and build four new substations was announced recently by P. E. Randol, Central Louisiana Electric Co. vice president of engineering.

Primary purpose of the power line extensions is to supply electricity to the Valley Electric Membership Cop, with headquarters at Natchitoches.

The new transmission lines will also serve as additional sources of power to meet growth needs of areas served by CLECO.

Coal Div. of Eastern Gas & Fuel Has \$9,400,000 Program

A \$9,400,000 capital improvement program for 1961, a record for a one-year period, is under way in the Coal Division of Eastern Gas and Fuel Associates, the nation's fifth largest commercial coal producer.

This was revealed recently by W. B. Ross, Eastern vice president and general manager of the Coal Division, during a two-day meeting of

75 of the company's top coal sales and operating personnel.

The expansion expenditures for the current year, the coal executive pointed out, include (1) completion of a major new coal cleaning and preparation plant at Eastern's Federal No. 1 mine near Fairmont, W. Va.; (2) addition to cleaning facilities at the company's Keystone mine at Keystone, W. Va.; and (3) "normal replacements and extensions," including mine cars and other equipment.

The new Keystone facilities are scheduled for completion this year and the Federal plant early in 1962.

Edward J. Murphy Elected Secretary of Stone & Webster Service

EDWARD J. MURPHY has been elected secretary of Stone & Webster Service Corporation, of New York City, one of the nation's largest management advisory firms. He replaces Carl H. Conley who has retired after 38 years with the company.

The appointment was announced by President L. S. Storrs, Jr.

Mr. Murphy, assistant secretary since 1954, joined the company in Boston in 1921.

Mr. Conley, widely known in the electric and gas utility industry, was named secretary of Stone & Webster Service Corp. in 1954. He also served as the firm's house counsel.

Hans E. Nissel Joins Middle West Service

HANS E. NISSEL, long-time public utility consultant has been made a vice-president of Middle West Service Company. The appointment was announced by R. McClanahan, president of the consultant firm.

Mr. Nissel has been active during the past 10 years as an independent consultant to public utilities in the United States on matters related to

operation, regulation and engineering economics, and has presented expert testimony before Federal state commissions. He has also served in this same capacity for a number of large industrial firms. In addition, he has performed extensive consulting assignments and held executive posts with public utilities in Europe and the Middle East.

Mr. McClanahan placed prime emphasis on the fact that the appointment of Mr. Nissel is one of an extensive program to broaden the scope of company operations to continue to satisfy the increasing need within public utilities, as well as industry, for top notch technical assistance.

Okonite Issues Manual

LATEST information on cable insulated with OKONEX butyl-based high voltage insulation is now available in the 48-page reference manual just issued by The Okonite Company and cable manufacturing subsidiary of Kennecott Copper Corporation.

This service-proven butyl-based rubber insulation designed by Okonite for multi-purpose service up to 90° is said to be extremely resistant to ozone, heat and moisture. Compared to ordinary cables, cables insulated with OKONEX are claimed to be able to carry heavier loads for a given size conductor or the same load on a smaller size conductor.

For a copy of "OKONEX Insulated Cables," write—The Okonite Company, Passaic, New Jersey.

VEPCO to Spend \$85,000,000 In 1961

VIRGINIA Electric and Power Company, Richmond, Virginia, expects to spend \$85 million in 1961 on construction—an all-time high according to A. H. McDowell, president. Under construction scheduled for completion in

INDUSTRIAL PROGRESS—

(continued)

1962 are two 200,000 kilowatt stations, one at the Portsmouth power station and the other at the Possum Gap station, near Quantico, Va. Gaston Dam under construction on the Roanoke river, eight miles upstream from the Roanoke Rapids station, will provide an additional 100,000 kilowatt capacity, and is expected to be completed in 1963. In addition, engineering has been started on a 1964 addition to the Chester power station, on the James river, just south of Richmond, which probably be a 300,000 kilowatt station.

Earlier this year Vepco was authorized, by the Public Service Commission of West Virginia, to construct a mine-mouth power station in Grant county, near Petersburg, Va. Tentative plans anticipate the station may ultimately cost \$10 million, and will have a capacity of about 1,000,000 kilowatts. It is expected that the first unit of about 1,000 kilowatts will be placed in operation by the spring of 1965. Construction of the atomic power plant that Vepco and three neighboring utilities are building at Parr, W. Va., is on schedule. The station is expected to begin operation next year. It is a prototype plant of about 17,000 kilowatts, and is being built to advance the technology of generation of power from the atom.

High-Accuracy Power Computer Produced by Ohio Semiconductors

POWER computer of unusually high accuracy and broad frequency response has been announced by Ohio Semiconductors, Columbus, Ohio, a division of Tecumseh Products Company.

The new computer (transducer), Model PC-500, is for use as a power meter, power recorder, power monitor and demand indicator, feedback control and other applications. According to the announcement, the PC-500 is an accurate, wide-band, rugged, full effect power computer operating without moving parts and producing a D. C. voltage output proportional to true power. The high output voltage is a linear function of power transmitted, is temperature insensitive over a wide temperature range, and requires no amplification to drive many recording instruments and meters. The ability of the PC-500 to compute power over a wide frequency range of 50 to over 1000 cps

(Continued on page 20)



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PG&E Plans New Sonoma Geysers Geothermal Unit

PACIFIC Gas and Electric Company plans to double the size of The Geysers Geothermal power plant in northeastern Sonoma County, it was announced recently by President Norman R. Sutherland. The plant, which generates electricity with natural steam brought from within the earth, began operation last summer. It is

the first of its kind in America.

PG&E will add a 12,500-kilowatt generating unit to the one of that size already in service at The Geysers, Mr. Sutherland said. The company will invest approximately \$2.2 million in the new unit.

The steam wells which supply the geothermal plant are owned and operated by the Magma Power Company and Thermal Power Company, which sell the steam to PG&E. Seven wells have been developed at The Geysers. Four are now being used to supply the first unit.

The new unit will be built adjacent to the first, utilizing common operating, switching and transmission facilities. It will be designed to run automatically, without operators in attendance.

Mr. Sutherland said the addition of this second 12,500-kilowatt unit would complete the installation of geothermal generating facilities at the plant. However, the Magma and Thermal companies are investigating steam supplies for possible development in other nearby areas along Big Sulphur Creek, which runs through The Geysers region.

Geothermal projects are possible only where the "magma," or molten mass ordinarily deep within the earth, is close to the surface. When this occurs, steam formed from water in the magma is emitted through underground fissures. Even more steam is formed by surface water that seeps down to contact the heated rocks. The Geysers, steam is released and freed by drilling 500 to 1,000 feet. Then it is piped to the turbines for the electric power generating station.

G-E Appointment

PATRICK J. BINGHAM, of New York, N. Y., is the new managing engineering administration in General Electric's Gas Turbine Department.

Mr. Bingham succeeds V. Sheals who retired from the company recently after nearly 40 years of service.

Appointment of Mr. Bingham was announced by C. W. George, Manager of Engineering, for the Turbine Department.

Kw. hrs.	No. Bills	Consumption in Kw. hrs.	CUMULATIVE Consumption in Kw. hrs.	RATE -	Consolidated Factor
0	2608	0	2008	0	755449
1	1195	1195	3203	1195	1505703
2	1649	3244	4852	1649	2256308
3	2085	5329	6935	2085	3004830
4	2377	7706	9312	2377	3750975
5	2637	10343	12149	2637	4494283
6	3245	13588	15394	3245	5234346
7	3846	17434	19240	3846	5970563
8	4730	22164	23670	4730	6702050
9	5297	27461	28698	5297	7428240
10	5518	32979	34214	5518	8147912
11	7029	39998	40281	7029	8860595
12	7914	47912	46807	7914	9562284
13	8696	56608	53803	8696	10261517
14	9554	66162	61257	9554	10947796
15	10275	76437	69232	10275	11624000
16	11286	87723	77818	11286	12288918
17	11835	99558	86653	11835	12944081
18	12260	111818	95988	12260	13582824
19	12962	124780	107750	12962	14211685
20	13463	138243	121213	13463	14826397
21	13990	152233	135203	13990	15427812
22	14642	166875	149745	14642	16015764
23	15497	182372	165042	15497	16590126
24	16462	198834	181095	16462	17150859
25	17537	216371	197824	17537	17697950
26	18722	235093	215346	18722	18231544
27	20017	255110	233663	20017	18751967
28	21422	276532	253095	21422	19259436
29	22937	299469	273540	22937	19754550
30	24562	323931	295082	24562	20236240
31	26307	349938	317829	26307	20705867
32	28172	377510	341781	28172	21163540
33	30157	406667	366938	30157	21609759
34	32272	437439	393470	32272	22044801
35	34517	469856	421387	34517	22468281
36	36892	503948	450580	36892	22882814
37	39407	539655	481023	39407	23286322
38	42062	577017	512725	42062	23680312
39	44857	616074	545688	44857	24064312
40	47792	656926	580000	47792	24438622
41	50867	700593	615767	50867	24803958
42	54082	747175	653030	54082	25160297
43	57437	795612	691867	57437	25508058
44	60932	845949	732200	60932	25847468
45	64567	898176	774127	64567	26178747
46	68342	952318	817569	68342	26502043
47	72257	1008475	862516	72257	26818281
48	76302	1066627	908959	76302	27127512
49	80477	1126774	956806	80477	27430681
50	84792	1188916	1006048	84792	27727847
51	89237	1253053	1056691	89237	28018958
52	93812	1319185	1108733	93812	28304068
53	98517	1387302	1162150	98517	28583147
54	103452	1457419	1216963	103452	28856258
55	108517	1529536	1273176	108517	29123368
56	113812	1603653	1330689	113812	29384468
57	119327	1679770	1389502	119327	29639518
58	125052	1757887	1449615	125052	29888568
59	130987	1838004	1510932	130987	30131618
60	137132	1919221	1573465	137132	30368668
61	143487	1999538	1637208	143487	30600718
62	150052	2079955	1702161	150052	30827768
63	156827	2160472	1768324	156827	31049818
64	163812	2241089	1835687	163812	31266868
65	170907	2321806	1904250	170907	31478918
66	178112	2402623	1974013	178112	31684968
67	185527	2483540	2044976	185527	31885018
68	193152	2564557	2117139	193152	32080068
69	200987	2645674	2190402	200987	32270118
70	209032	2726891	2264765	209032	32455168
71	217287	2808208	2340228	217287	32635218
72	225752	2889625	2416791	225752	32810268
73	234427	2971142	2494454	234427	32980318
74	243312	3052759	2573217	243312	33145368
75	252407	3134376	2653080	252407	33305418
76	261712	3216093	2734043	261712	33460468
77	271227	3297910	2816106	271227	33610518
78	280952	3379727	2899269	280952	33755568
79	290887	3461544	2983532	290887	33895618
80	301032	3543361	3068895	301032	34030668
81	311387	3625178	3155358	311387	34160718
82	321952	3707095	3242921	321952	34285768
83	332727	3789112	3331584	332727	34405818
84	343712	3871229	3421347	343712	34520868
85	354907	3953446	3512210	354907	34630918
86	366312	4035763	3604273	366312	34735968
87	377927	4118180	3697436	377927	34836018
88	389752	4200797	3791699	389752	34931068
89	401787	4283514	3887062	401787	35021118
90	414032	4366331	3983525	414032	35106168
91	426487	4449248	4081088	426487	35186218
92	439152	4532265	4179751	439152	35261268
93	451927	4615382	4279514	451927	35331318
94	464812	4698599	4380377	464812	35396368
95	477807	4781816	4482340	477807	35456418
96	490912	4865033	4585403	490912	35511468
97	504127	4948250	4689566	504127	35561518
98	517452	5031467	4794829	517452	35606568
99	530887	5114684	4891192	530887	35646618
100	544432	5197901	4987655	544432	35681668

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INDUSTRIAL PROGRESS—(Continued)

Philco Introduces New, Lower Cost Peripheral Computer System, Model 2400

The Philco 2400 electronic data processing system, a new concept in peripheral computer design which reduces 25 per cent to the time available for the Philco 2000 central computer to process computational problems, was reported recently by Herman A. Affel, Jr., general manager of Philco's Computer Division. The 2400 system, Mr. Affel pointed out, lends itself to expanded processing and remains a balanced system. The added computational time for the central computer is achieved by processing many routines through the 2400 which normally would be processed through the Philco 2000.

The new system, which will lease for \$7,800 per month, is now available for order with delivery ranging from 12 to 18 months, depending upon customer specifications.

The \$7,800 per month system will include the 2400 central processor with 8,192 characters of high-speed storage, one magnetic tape with a transfer rate of 90,000 characters per second, a card reader which reads 2,250 cards per minute, a high-speed printer which prints 900 lines per minute and a card punch. The system will be used with the Philco 2000 central computer.

The 2400 system includes stored program functions such as editing, search and select, sorting and data translations. The basic system provides for additional input-output devices and memory expansion. Reduction of floor space, lower maintenance and power costs and fewer operator controls are other features of the Philco 2400's design.

Southwestern Public Service to Use G-E Automatic Dispatching System For Control of Six Turbine Generators

SOUTHWESTERN Public Service Company, Amarillo, Texas, will use a General Electric Automatic Dispatching System to control six of its largest turbine-generators in its four-state distribution area. Installation of the G-E system is expected to be completed by the end of 1961.

The General Electric ADS will help Southwestern Public Service to control the six turbine-generators at three steam generating plants located in two states. Southwestern's power plants tied together by the Automatic Dispatching System will include Plant X, three turbine-generators; Cunningham station, one turbine-generator, and Nichols station, two turbine-generators. Plant X and Nichols station are located in Texas while Cunningham station is located in New Mexico.

Besides using the ADS to control the turbine-generators, Southwestern Public Service will feed the equipment data of what is being done at other generating plants in its operating territory. The Automatic Dispatch System is a development of General Electric's Instrument Department, West Lynn, Mass.

Remote Control Thawing Station Helps Utility Complete 90,000-Ton Stockpile

DESPIITE one of the worst winters on record, the Baltimore Gas and Electric Company completed winter stockpiling operations at its new Charles P. Crane

(Continued on page 22)

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station on schedule. Stockpiling of some 90,000 tons of coal continued without interruption through the coldest weather of the season.

The Charles P. Crane station is scheduled for commercial operation early in the summer of 1961. The first unit, one of four planned for this site, will consume some 65 tons of coal per hour under full-load operation.

A one-man thawing station, possibly the most "automated" of its type installed to date, enables the company to thaw up to 10 cars an hour. The 225-foot-long thawing facility handles five cars at a time.

Thirty-six prefabricated thawing pits are so arranged that any size car, or any combination of sizes in a five-car train, can be thawed effectively without damaging the cars. Each pit radiates heat at the rate of 1.5 million Btu per hour. The arrangement of the pits makes available to each car as much as 6 million Btu per hour.

This thawing station was designed and engineered co-operatively by Hauck Manufacturing Company, Brooklyn, N. Y., and the Baltimore Gas and Electric Company to meet the specific requirements of the Charles P. Crane station.

TECO Plans \$83 Million Construction Expenditure for Next Three Years

ACCELERATED growth of the Tampa-Florida West Coast area will require that Tampa Electric Company invest \$83,000,000 in constructing new facilities in the next three years in order to keep ahead of the electrical needs of the area. W. C. MacInnes stated recently in an address before the San Francisco Society of Security Analysts.

Mr. MacInnes pointed out that the Florida Development Commission expects a population growth of 73 per cent in the Tampa-Central West Coast area of Florida, compared to an overall expected 50 per cent growth for the state during the next 10 years.

"The Company's kilowatt-hour sales, which for 1960 were up 12.6 per cent over 1959, were more than double the National figures of 6.2 per cent. At the end of 1960, average annual use per residential customer stood at 5,188 kilowatt-hours, compared with the National average of 3,790," said Mr. MacInnes.

Contributing the growth of Tampa Electric not only to an increase in population growth, but also in the increased use of electricity by all customers, Mr. MacInnes gave credit to his Company's advertising and sales promotion activities.

"Our residential sales promotion activities are geared to promote the total electric home, including heating and cooling," he said.

"During 1960, a majority of the central air conditioning systems installed in our area were heat pumps. So far in 1961, new heat pump installations are running about 48 per cent ahead of 1960. Altogether, we now have more than 3,600 central heat pump systems and 5,200 electric space heat installations on our lines."

The San Francisco analysts were told that TECO expects an industrial load growth of some 100,000 kilowatts in 1961 due to plant additions and expansions, in addition to the expected increase in residential usage.

"Our industrial sales showed a 14 per cent increase during 1960, and thus far in 1961 have continued to grow at about the same rate," he said.

Commonwealth Edison Orders Two Turbine Generators From Westinghouse

COMMONWEALTH Edison Company has ordered from Westinghouse Electric Corporation two turbine generators, it is announced by Willis Gale, chairman of the utility. The units, each of which will have a net generating capability of 560,000 kilowatts, are the largest ever ordered by Commonwealth.

With the addition of the new machines, net generating capability of the Commonwealth Edison system will be 7,606,000 kilowatts, after allowing for retirement of 145,000 kilowatts of old equipment.

The first of the two new units has been ordered for service at the utility's Joliet station early in 1965; the second for service in 1965 or 1966 at a location not yet determined. The order amounted to \$22,050,000, or \$19.69 per kilowatt.

The company announced also that a new 305,000 kilowatt unit has just been placed in regular service at its Crawford station in Chicago, bringing the system's net generating capability to 5,511,000 kilowatts. Three other units totaling 1,120,000 kilowatts are now in various stages of construction.

Flow Meter Handbook Revised by Honeywell

A NEW edition of its Flow Meter Engineering Handbook has been published by the Brown Instruments Division of Minneapolis-Honeywell Regulator Company.

The handbook first was issued in 1936 and then revised in 1946. The new edition has basic flow calculations rearranged for easy reference and includes primary measuring devices other than orifice plates.

Author of the third edition is Charles F. Cusick, special engineering supervisor for Brown Instruments, a leading producer of industrial process instrumentation. In years with Honeywell, Mr. Cusick has contributed a number of articles on flow meters to technical publications.

The 170-page book, which includes schematic diagrams, graphs, charts and other data, contains separate chapters on steam, liquid and gas flow calculations, each with data necessary to calculate or check an orifice plate installation.

Price of the book is \$7.50. It may be ordered from: Brown Instruments Division, Mail Station 028, Minneapolis-Honeywell Regulator Company, Wayne & Windrim Avenues, Philadelphia 44, Pa.

Steel Tower Built by Light Helicopter Topped Out Four Days Ahead of Schedule

A 200-foot tall steel transmission tower was topped out four days ahead of schedule recently when Hiller 12E light utility helicopter lifted 93 feet of the structure in half-ton steel sections to within arm's reach of riggers.

The entire project, from the 11-foot level until the last insulator was bolted in place, took only 4½ hours of flying time by the 305-horsepower Hiller, which itself weighs only 1,700 pounds.

According to officials of Pacific Power and Light Company, Tyngsboro Construction Co., and Columbia Helicopters, it was the first time a light helicopter had been used to erect heavy steel structure and the first time an airlift had been used over water in the Pacific Northwest.

The project, the first of two similar towers built to span 115,000 volt lines across ocean shipping channels in Coos Bay, Oregon, was part of a 4-mile powerline now under construction.

by Pacific Power and Light to
re a new paper mill.

New System Cuts Cost of Making Duplicator Masters at Detroit Edison

THE cost of making duplicator mas-
ters has been reduced considerably
by the new system. The work flow sharply accelerated
through installation of a high-speed
reproduction method in the
duplicating department of the Detroit
Edison Company.

According to a release made avail-
able by the Eastman Kodak Com-
pany, annual savings estimated at
\$2,000 are credited to Detroit Edi-
son's recent decision to handle an im-
portant share of its reproduction
work through the Eastman Kodak
Ektalith Method, a new process for
making inexpensive plates for offset
production.

Also the time needed—from ar-
rival of original copy at the service
desk to positioning the plate on the
press—has been reduced on the plates
now produced by Ektalith from an
average of three hours to one-half
hour.

At the same time the Ektalith
method, with its ability to produce
reductions and enlargements as well
as same size reproductions, has in-
creased the variety of work possible
Detroit Edison's duplicating de-
partment.

Formerly Detroit Edison repro-
duced approximately 4,350 originals
each month through metal-plate, direct-
image masters, and other processes.
The prime reason for the addition of
the Ektalith Method was the cost of
producing the metal plates for small
runs: 50 to 100 copies.

Now, Detroit Edison's duplicating
department is making about 350 mas-
ters per month with the Ektalith
method. Around 40,000 masters, in-
cluding direct-image, are used per
month and metal plates are still relied
on for long runs.

The Ektalith Method, installed in
the company's Copying Service Sec-
tion, consists of a Model 20 Kodak
Ektalith Processor used in conjunc-
tion with a Wessel dark-room camera
and a Multilith 2066 press. All mas-
ters currently being prepared are 15
by 20-inches. Nearly all offset copies
produced are 11 by 17-inches. About
90 per cent of all jobs are reductions
of originals, the remainder size-to-
size copies.

Among the jobs currently being re-
produced by the Ektalith Method are

station wiring diagrams, network
bank diagrams, construction sched-
ules, organization charts, transformer
lists, department activity reports,
company forms, newsletters, bulletins
and a variety of other material.

Cost savings were almost imme-
diately realized after installation of
the system, according to Donald F.
Shepherd, Copying Service Super-
visor. Based on a run of 100 copies,
Mr. Shepherd estimates these savings
over the former camera-produced
metal plate process: material costs
down \$1.98 per plate, labor costs re-
duced \$0.67. Total savings: \$2.65 per
run of 100 copies.

Important also for such a high-
volume operation, was the sharp in-
crease in speed credited to the Ek-
talith Method. Shepherd estimates
that it takes about five minutes to
prepare a one-to-one master with his
darkroom Ektalith installation and
about seven minutes for a reduced-
size master.

Quality of reproduction, particu-
larly in connection with solids, and
the negligible amount of plate clean-
up required are also cited as major
benefits.

Million New Natural Gas Customers Push Consumers to 31.2 Million Peak

MORE than a million homes, busi-
nesses and industries became natural
gas users in 1960, bringing custom-
ers to a record 31.2 million, the
American Gas Association an-
nounced.

A. G. A. has completed a survey
of gas distribution and pipeline com-
panies which shows that at the end
of December, 1960, natural gas cus-
tomers increased 3.8 per cent over
the previous peak of 30 million set
in 1959.

Natural gas customers now total
93.6 per cent of the industry's 33.3
million gas users as more and more
customers switch from manufactured
and mixed gas.

Natural gas sold to customers by
the gas utility and pipeline industry
in 1960 soared to a new record also.
Sales during the year rose 5 per cent
over 1959—the previous peak—to
89.8 billion therms.

Because of conversions from man-
ufactured and mixed gas, New Eng-
land showed the biggest gain in nat-
ural gas customers, up 26 per cent
from 1959. There are now 1,441,500
natural gas customers in New Eng-
land.

The region also had the highest
percentage increase in all classes of
natural gas customers. Industrial
users rose 40.6 per cent, commercial
consumers increased 32.2 per cent
and residential customers jumped
25.6 per cent.

The second largest area gain was
in the Mountain Region which in-
cludes Arizona, Colorado, Idaho,
Montana, Nevada, New Mexico,
Utah and Wyoming. Customers in
this region rose 4.3 per cent from
1959. They now total 1,292,100.

The total use of natural, manu-
factured and mixed gas in 1960 rose
to a new peak of 92.1 billion therms.
This is an increase of 4.8 per cent
over 1959, when 87.9 billion therms
were sold.

Commercial sales of all types of
gas showed the largest percentage
gain, climbing 11.3 per cent from 1959
to 9.2 billion therms. Residential gas
totaled 32.2 billion therms, an in-
crease of 8.3 per cent above the
previous year. Industrial sales rose
2.2 per cent to 46.6 billion therms.

Revenues during 1960 from all
types of gas totaled \$5.6 billion, com-
pared to \$5.1 billion in 1959.

The A. G. A. report included a
Federal Power Commission summary
which showed that natural gas used
for electric generation during the
fourth quarter of 1960 increased 7.7
per cent over the year earlier quarter.

Westinghouse to Supply Nuclear Fuel for Experimental Gas-Cooled Reactor

WESTINGHOUSE Electric Cor-
poration's atomic fuel department has
been awarded a contract to fabricate
the fuel assemblies for the Experi-
mental Gas-Cooled Reactor (EGCR)
at Oak Ridge, Tenn.

Ira G. Fox, manager of the atomic
fuel department, said the \$786,000
contract was awarded on the basis of
competitive bidding by the Union
Carbide Nuclear Company, division
of Union Carbide Corporation. Union
Carbide operates the Oak Ridge
National Laboratories for the Atomic
Energy Commission.

EGCR is a combined experimental
and power demonstration reactor that
is now under construction. It is
scheduled for operation in late 1962
and is designed to produce 24 mw of
electricity. The unique reactor will
serve as a prototype for studies to
determine feasibility of operating
gas-cooled reactors in full-scale nu-
clear generating stations.

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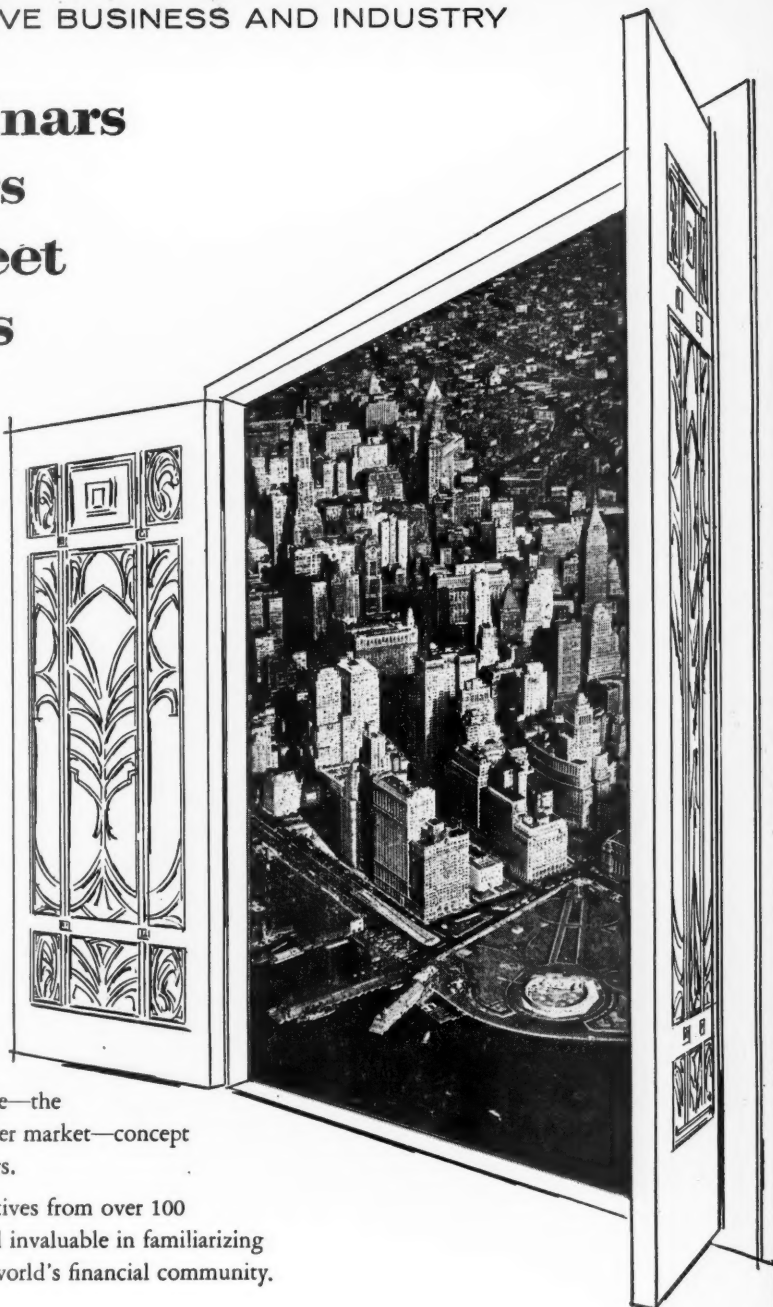
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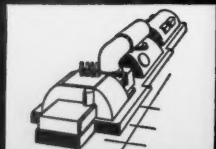
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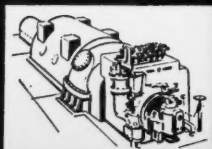
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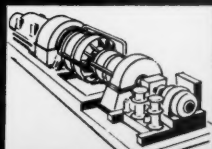
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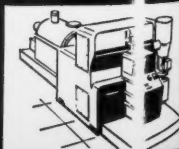
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